WEST DEALER ISSUE
Pages 9-16

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Two USDA Studies Show Value of Soil Saving Practices

WASHINGTON—The economic value of soil-saving conservation practices is re-emphasized by results of two long-term U.S. Department of Agriculture research studies.

At Waco, Texas, 12 years of conservation practices contributed to a substantial increase in the efficiency of cotton production through higher yields per acre. At Arnot, N.Y., nine years of conservation work greatly benefited eroded land, permitting corn yields to be more than doubled, even though the effects of erosion were not completely remedied.

On comparable lands at Waco, J. B. Pope, soil conservationist of USDA's Agricultural Research Service has since 1943 compared the production of cotton with and without the benefit of such conservation practices as terracing, contouring, fertilization, and use of a legume in the crop rotation.

The cumulative gains of conservation practices, measured in per-acre yields of lint cotton in 1955, ranged from 297.7 to 358.4 lb. of cotton per acre, depending upon the type of rotation. Production without benefit of conservation averaged 154.5 lb.

Highest yield was obtained from a two-year rotation of cotton and oats-clover. A phosphate fertilizer —0-45-0—was applied at the rate of 100 lb. per acre at the time of seeding oats-clover. The rotation followed on the non-conservation fields was cotton, oats, cotton, corn.

Rebuilding of eroded sloping silt-loam soils at Arnot was accomplished by George R. Free, USDA soil scientist, through use of fertilizer and grass-legume mixtures. Corn was grown on these eroded fields in 1946-47; a grass-legume mixture in 1948-49; corn in 1950; a grass-legume mixture in 1951-52-53; and corn in 1954.

All plantings were fertilized—corn at the rate of 1,000 lb. per acre of 10-10-10. In 1946, per-acre corn yields from eroded and non-eroded fields were 28 and 80 bu. respectively. In 1954, yields were 72 and 83 bu.

USDA REPORT SAYS:

Nutrient Content of Fertilizer Holds Up Despite Tonnage Loss

See Tables on Page 20

WASHINGTON, D.C.—A number of factors have worked against fertilizer shipments this spring, making the current movement of fertilizer one of the poorest in a number of years, according to the supplemental report of the fertilizer situation for 1955-56 issued by the U.S. Department of Agriculture. However, much of the loss in tonnage may be made up before the season is over, industry leaders believe.

Factors tending to slow down fertilizer sales and deliveries since the first of the year, include extremely dry weather in the West Central states, a long, cold winter in the East and uncertainty about farm legislation. Estimates of how extensive the tonnage loss may be by the end of the year have been around 5%.

The report, prepared by A. L. Mehring and C. A. Graham, Commodity Stabilization Service, Food and Materials Requirements Division, USDA, points out that rapid increases in non-farm uses of fertilizers on highways, parks, lawns and home gardens have a favorable impact on the industry. It was estimated that in 1954, 9% of fertilizer usage was of the non-farm variety.

The "Fertilizer Situation" report predicts that although over-all tonnages of fertilizers may be down somewhat this fiscal year, movement of plant nutrients will probably approximate that of 1954-55. The trend is toward the use of more concentrated materials and mixtures, accentuated by the recent freight increase of 6%.

The nitrogen situation was described by the report as follows:

"A survey made by the Chemical and Rubber Division, Business and Defense Services Administration, Department of Commerce, and published since our last report, indicates that the annual capacity to produce synthetic ammonia was equivalent to 3,353,000 tons of nitrogen on Jan. 1, 1956.

"Other plants that came on stream since then, or that are scheduled for completion this year, should bring the productive capacity above 3,900,000 tons on Jan. 1, 1957. Actual production of synthetic ammonia during the calendar year 1955 was equivalent to 2,601,918 tons of nitrogen.

"Stocks of nitrogen in the hands

(Continued on page 20)

World Nitrogen Situation

For a view of the world nitrogen situation for the year ending June 30, 1956, as reported by Aikman (London) Ltd., see World Report on page 8 of this issue.

Farm Bill Encourages Corn Belt Farmer to Invest in Plant Food to Gain Full Benefit From Provisions Outlined in Legislation

By JOHN CIPPERLY
Croplife Washington Correspondent

WASHINGTON, D.C.—The farm bill signed by the President last week, appears to point the way to a country farm price for corn in the commercial corn belt close to $1.50 a bushel, and with a floor of $1.25 per bushel. The latter figure is one below which this crop should not go when farmers sell their crop.

Corn buyers and merchandisers in Illinois say that the $1.25 minimum stop-loss level is clear assurance to good corn producers.

This farm law as far as the corn crop area is concerned, looks like a definite prescription which will halt any anemia in the plant food and pesticide industries sales in the corn belt. At the price support levels for the commercial corn belt it is seen that once the farmer knows what protection is to be available for him, he can step up his per acre outturn with confidence through the use of adequate and properly related plant food applications.

This new development gives promise that dealer stocks of these products may be in demand and will result in cleaning out the tank and shelves of these distributors. It is an opportunity to step up planned use of plant food ingredients all throughout the old corn belt and in a lesser degree to lead the way to better production and higher net profits per acre to corn farmers outside the commercial corn belt.

Here is about the way this new farm law will work for the corn crop

(Continued on page 21)

★

SOIL BANK PROVISIONS MADE CLEARER

WASHINGTON—The farm bill which President Eisenhower signed into law last week contains the soil bank provision which is designed to take out of crop production wheat, cotton, corn, peanuts and tobacco. The bill knocked out of the soil bank all the minor feed grains such as rye, oats, barley and grain sorghums. According to a USDA decision, only spring wheat, corn and tobacco will gain any chance of participation in the soil bank for the 1956 crop year.

Record May Frost Causes $10 Million In Crop Damage in New England Region

By GUY LIVINGSTON
Croplife Special Correspondent

BOSTON—An unprecedented frost, causing $10 million crop damage in New England May 24 was followed by a freak dust storm which roared through sections of Massachusetts and Rhode Island.

Massachusetts suffered a $5 million crop damage due to the frost, according to L. Roy Hawes, state agriculture commissioner. Fully half the damage was caused to the apple crop, particularly in the areas of Fitchburg, Littleton, Sterling and Middlesex County. It was the worst orchard frost damage in recent years.

A large part of the strawberry crop was wiped out. Early plantings of sweet corn, peppers, beans, cucumbers, spinach and tomatoes were reported ruined in many sections.

Crop damage was reported in New Hampshire, Vermont, Rhode Island and Connecticut. Officials said the farmers have to take the loss "on the chin" since there is no state or federal aid for late frost damage.

Asparagus in Massachusetts was given a setback of three to four days when the frost nipped the tops of the plants. The cucumber damage was particularly extensive in Bristol County.

Charles Schelmut, assistant commissioner of agriculture, said Massachusetts suffered the worst frost

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IMC to Construct Plant Food Factory At Fairfax, Minn,

CHICAGO—International Minerals & Chemical Corp. will build a factory for the production of chemical plant food mixtures at Fairfax, Minn., Maurice H. Lockwood, vice president in charge of the corporation's plant food division, announced May 31.

The new plant will be located on a 42 acre tract west of Fairfax, facing an improved highway and extending along the Minneapolis & St. Louis Railway tracks. Construction will begin shortly, Mr. Lockwood said.

The plant will be in operation for the 1957 spring season, and will be in a group managed by J. W. Hicks, area manager, Mason City, Iowa.

Currently, International serves the south-central Minnesota area from its plant at Mason City, where it has a contact sulphuric acid plant, a superphosphate manufacturing unit and a fertilizer mixing plant.

New Approach to Weed Killing Seen at Rutgers Conference

NEW BRUNSWICK, N.J.—Herbicides such as MCPB and 2,4-DB offer "a whole new approach" to weed killing, according to Dr. Richard J. Aldrich, USDA weed researcher stationed at Rutgers University. He was one of the speakers at the weed identification and control meeting at the College of Agriculture held here May 16. Dr. Aldrich said that neither of these compounds is effective as applied, but the enzyme systems of certain plants react to convert them to the effective 2,4-D acid.

Tests indicate that enzymes of legumes are tolerant of the chemicals, he said, so MCPB and 2,4-DB hold promise for use to kill weeds in grains underseeded to legumes. Field tests have been set up in peas and beans at Seabrook Farms in New Jersey, with a pre-emergence application of the chemicals, Dr. Aldrich explained.

The new method was developed in England and is being introduced on an experimental basis this year by American herbicide producers.

Dr. Aldrich discussed also other new chemicals for use against weeds in farm crops. Amino triazole and Dalapon are promising, he reported, for quackgrass in crops such as row corn and soybeans drilled or row-planted. Quackgrass must be up before treatment, and with amino triazole, the operator has to wait to see the effects of the herbicide on the weed plants before plowing. A complete bleaching of the plant, indicating loss of chlorophyl, shows the treatment is working.

General recommendations for 2,4-D have called for applications at rates that are just on the borderline of danger to the crop, Dr. Aldrich observed. He and his associates are testing the possibilities of pre-emergence sprays combining TCB with compounds such as Randox (CDAA) and CDEC, at rates of only a half-pound per acre. This is about a third as much as the equivalent 2,4-D needed.

Another new material — available commercially only in New York State this year—is EMID, a derivative of 2,4-D that is expected to give prolonged control because it is claimed to be less leachable and not as easily decomposed.

At rates of 3 to 6 lb. an acre, Randox may fit into the vegetable situation, if this season's tests are successful, according to the specialist. The compound has shown selectivity on table beets, sweet corn and lima beans.

Under test also are other herbicides suggested for use in horticultural crops including Alanap 3, MCPB and 2,4-DB, Geigy 444, and Vapam.

Turning to weed killers for use in turf, Dr. Aldrich discussed the organic arsenicals, and observed that burn injuries to turf grasses depend on sodium arsenite impurities each compound contains.

Dr. Aldrich advised against using pre-emergence treatments in newly-seeded lawns, and he forecast wider use of granular preparations, particularly in horticultural and nursery crops when the cost is justified by the bulk.

Claude Phillips, weed specialist at the University of Delaware, gave some practical helps in identification of weeds. He demonstrated his inexpensive method of drying, mounting, and preserving weed specimens.

Prof. Phillips uses a home-made blotter press, bound with webbing straps to press specimens, which are then mounted on light cardboard, using a water-soluble paste. The mounted specimen is inserted in a plastic envelope of a type that is available commercially. He went through sections of his new bulletin, "Weeds of the Northeast," to illustrate its simplicity in identifying weeds, and put commercial representatives and county agents through their paces in an informal examination in identifying potted weed plants and others found on a tour of the Experiment Station grounds.

William G. Harden, extension agent in agricultural engineering at Rutgers, showed the group several types of pumps and sprayers, reviewing the ability of each to withstand wear and do an effective job.

Don Schallock, extension specialist in farm crops at Rutgers, who was in charge of the conference, expressed satisfaction at the keen interest shown in the weed problem.

AT RUTGERS WEED CONFERENCE—Top photo: Claude Phillips, University of Delaware weed specialist, gives some practical tips on weed identification at the Rutgers University weed meeting held at New Brunswick, N.J., May 16. Prof. Phillips used many growing specimens other than the one he is holding to test industry men and county agents on their knowledge. Others, left to right, are Eric Peterson, Union County (N.J.) agricultural agent; Donald A. Schallock, Rutgers farm crops specialist who was in charge of the conference, and Raymond H. Battle, assistant agent in Gloucester County, who is holding Prof. Phillips' new weed identification manual, "Weeds of the Northeast."

Lower photo: Dr. Richard J. Aldrich, USDA researcher at left, points out what's new in weed control to William Reid, American Cyanamid Co.; Kenneth B. Mallery, agronomist with the First Army Engineers, formerly with SCS; and George A. Nordberg, Western Soil Management, Newark, N.J.

Ralph Vreeland Named To American Potash Post

LOS ANGELES — Ralph Vreeland has been named plant process engineer at American Potash & Chemical Corp.'s Los Angeles plant. In his new capacity, he is in charge of process control and development of existing products.

Mr. Vreeland came to American Potash & Chemical Corp. from U.S. Hoffman Machinery Corp. at Scranton, Pa. Prior to that, he was with New Jersey Znic Co. at Palmerton, Pa.

Robert J. Orlik

Appointments Made in Diamond's Chlorinated Products Division

CLEVELAND — Appointment of Robert J. Orlik as sales promotion representative for agricultural chemicals in the chlorinated products division of Diamond Alkali Co. has been announced by Loren P. Scoville, general manager of the division.

Mr. Orlik, who has been a member of the divisional administrative staff since May, 1955, will coordinate the sales activities at Diamond's home office with those of its branch sales offices. He will make his headquarters at Cleveland.

Mr. Scoville also announced two other appointments in the division.

Dr. M. J. Skeeters, acting manager of research since June, 1955, becomes manager of research with responsibility for the division's research, development and sales technical service program.

Alex Hlynsky was named divisional group leader for research, the post in which he has been serving since last June.

Mr. Orlik, who started with the Diamond organization as a clerk at the company's Deer Park Plant at Houston, Texas, in December, 1948, was transferred to Cleveland last May. Previously, he had been associated for two years with Nopco Chemical Co., Inc., Harrison, N.J., in an advertising capacity.

TVA Completes Patents On Ammoniation Process

WILSON DAM, ALA.—A patent issued to the Tennessee Valley Authority recently, covering ammoniation equipment, completes the patenting of the process and equipment developed several years ago by TVA engineers for ammoniating fertilizer mixtures and superphosphates. While the latest patent covers ammoniation equipment, a patent issued to TVA in January, covers the ammoniation process itself.

The latter process has been adopted by many firms in the fertilizer industry, with royalty-free licenses already issued to 40 fertilizer producers to use the process and to 15 equipment manufactures to produce the equipment, TVA reports.

In addition to the two patents on fertilizer ammoniation, patents issued in 1956 cover developments on a process for the production of carbonated nitric phosphate fertilizer, improvements in methods for the crystallization of ammonium nitrate and an improved process for the drying gases by contact with phosphoric acid. The latest patent is the 109th issued to TVA since its fertilizer and munitions research and development program was started in 1933.

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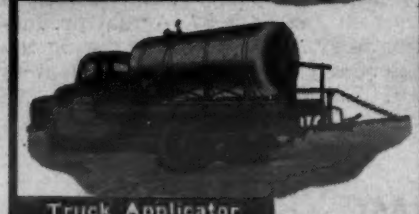
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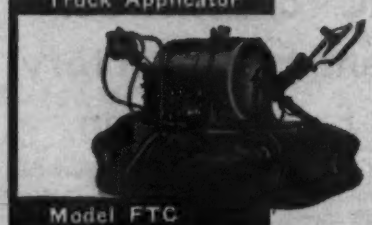
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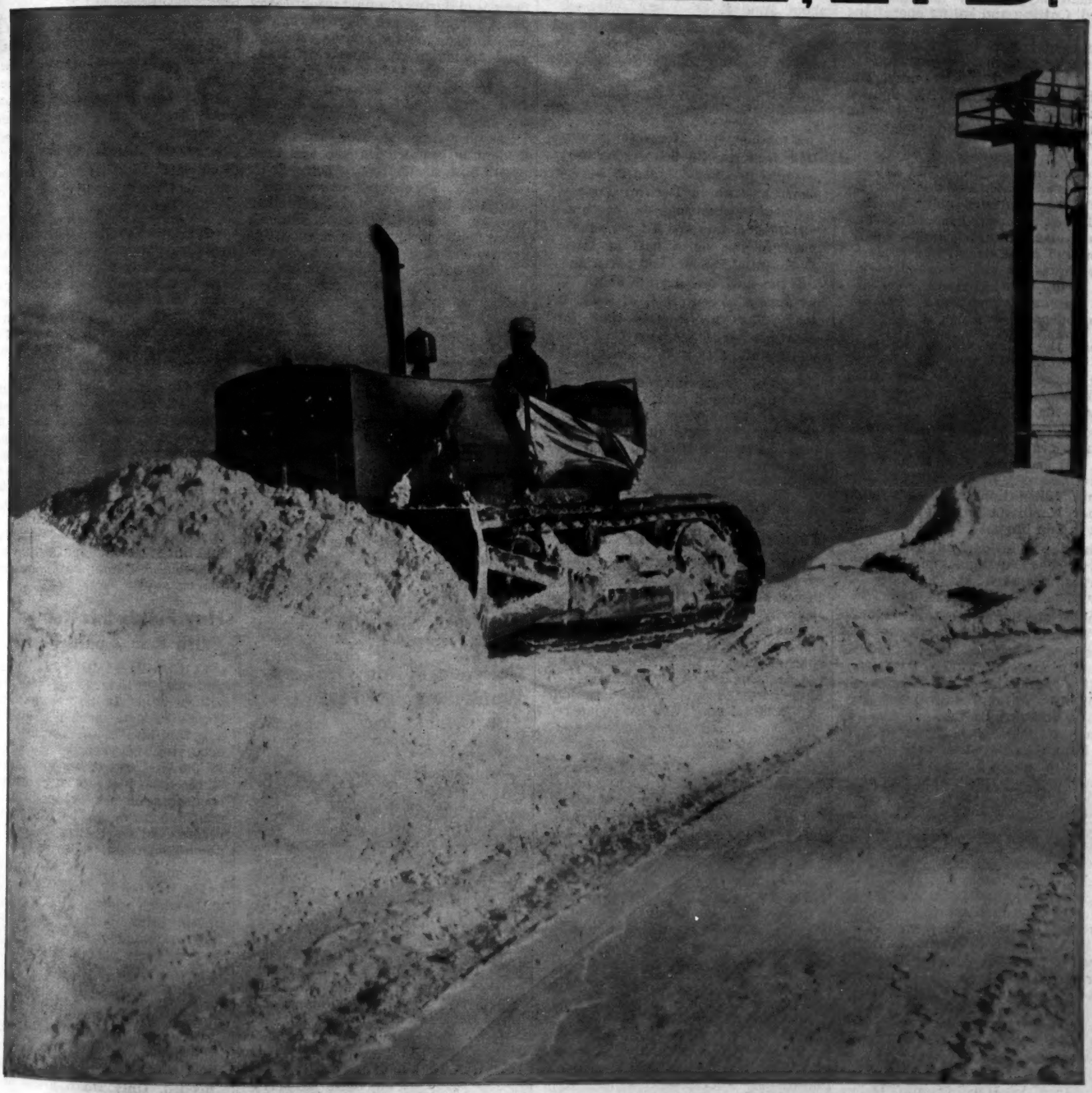

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INSECT, PLANT DISEASE NOTES

Spotted Alfalfa Aphids Threaten Second Cutting

STATE COLLEGE, N.M.—Spotted alfalfa aphids are increasing by leaps and bounds in recently-cut hay. Fields which had light-to-medium infestations before the first cutting are now overrun with aphids. If these aphid populations aren't controlled, the second cutting of alfalfa will produce less than 50% of the normal yield.

Last year at this time, many growers took a wait-and-see attitude about controlling the alfalfa aphid and consequently ended up with half as much hay as they normally expected. Cutting and baling operations were hampered because of the large amounts of honey-dew on the leaves and stems, and the hay was low in quality because it was stemmy. The right insecticide, properly applied when aphids and honey-dew show up in an alfalfa field, will prevent heavy losses.

Proper application is just as important as the insecticide that is used. Every alfalfa plant in the field must be treated including volunteer plants on ditch banks, roadsides and fence rows. Special care must be taken to prevent skips in the field. Swaths should overlap, and airplanes should be flagged to insure proper coverage.

Read the directions on the label and use insecticidese as directed. Take all the proper precautions listed when using insecticides. Don't take chances—take care.

Spotted alfalfa aphid infestations are heavy in untreated fields in Dona Ana and Eddy counties. Medium infestations are reported in San Miguel County. Infestations are being found farther North and at higher elevations in San Miguel County.

Thrips populations on cotton are light to heavy in Dona Ana and Eddy counties. Damage is beginning to show in some untreated fields.

Aphids are light on cotton in Eddy and Dona Ana counties.

Seed-corn maggot infestation in cotton is causing a severe loss of seedling stand and reducing seed germination in one field in Dona Ana County, and flea beetles are causing damage to tomato seedlings in Lea and Dona Ana counties, and serpentine leafminers (Liriomyza sp.) are damaging tomato plants in Lea County and cucumbers and alfalfa in Dona Ana County.

Grasshopper nymphs are becoming more abundant in several areas over the state. Land which has been irrigated in Taos County has medium to heavy infestations. Home gardens in Albuquerque are infested, and nymphs on range lands are showing up in spotty areas over the state. Grasshopper Control Project nymphal survey reports 3 to 25 nymphs per square yard in small areas in Lea County and one 75,000 acre block has a fairly heavy infestation.

In Roosevelt County there are patches with counts ranging from 1 to 20 nymphs per square yard. One large area in Harding and Union counties has an infestation of first instar nymphs ranging from 5 to 20 per square yard.

Corn Pests Prominent in Iowa Insect Report

AMES, IOWA—Wireworms were reported damaging or destroying corn in some fields not treated with soil insecticides in Polk, Marion, Hamilton, Hancock and O'Brien Counties May 26. Some of the fields are second year corn where no damage occurred in 1955. Wireworms feed in the soil at depths determined by soil temperatures. When soil temperatures are low—as they are this year—the worms work in the upper soil layers attacking the seed and sprouts. Farmers are advised not to depend on seed treatment to prevent all damage, since wireworms may cut sprouts above the seed.

Scattered infestations of sod webworms, cutworms, seed corn maggots, imbricated snout beetle and timothy billbugs have been seen or reported. Corn flea beetles are active in O'Brien County. These small, black active beetles carry the organisms causing Stewart's wilt of corn.

We have 50% pupation of European corn borer in the south half of Iowa and 12 to 20% pupation in central Iowa. First moths should appear about June 4.

Chinch bugs ranged 0-12 adults per corn plant (average 2) in one corn field in Decatur County, averaged 2-4 adult bugs per square foot in oats in the south ⅓ of Iowa. Bugs are mating.

Grasshoppers: Heaviest population seen was 10 lesser migratory nymphs per square yard in a very short pasture in Decatur County. Average populations in pastures, alfalfa and oats are 2-4 per square yard in the south half of Iowa. Differential hoppers will hatch during the next few days in south ⅓, by June 1 in central ⅓ of Iowa. It looks like the earliest time for treatment will be June 1 to 5 in south Iowa, 5 to 10 in central Iowa.

Pea aphids are increasing in numbers in south and central Iowa. They are 5-10 times more abundant this week than last week in alfalfa. Lady beetles, lacewing flies and nabid predators are also building up in numbers.—Harold Gunderson.

Pest Activity Light in Report from Indiana

VINCENNES, IND.—Insect activity for apples and peaches has continued to be light with little change from that reported a week ago. Rosy aphids continue to be troublesome in some of the apple orchards where special aphid control measures have not been applied. A few orchards still have red-banded leaf rollers present in the larval stage and European red mite have been slowly building up where protective measures were not applied.

Adult emergence of codling moth in overwintering cages was especially high on May 16 and 17 and was steady from May 18 to 21. Oviposition record cages indicate that egg laying was especially heavy May 16 to 17 and only light for the remainder of the period. Early laid eggs are in the red ring stage (2 warm days from hatch), indicating that a few entries will be found later this week.

Army worm adult moth activity determined by 5 bait traps shows that adult activity reached its peak between May 8 and 10. Five bait traps captured 20 moths during the past 7 days as compared to 152 for the period of May 9 to 15.—D. W. Hamilton.

Alfalfa Weevils Hurt Crop, Maryland Report Indicates

COLLEGE PARK, MD.—First generation alfalfa weevil adults are emerging in Montgomery County (May 25). Damage to unprotected alfalfa continues. No reports of armyworm damage in Maryland to date, although light damage from armyworms has been reported from Virginia and Delaware. Grain fields, particularly the rank spots should be watched closely for infestations.

Sod webworms have damaged corn in Montgomery County. Webworms that damage corn pass the winter as larvae in grass and sod lands. The most effective way to control these pests is by early fall plowing of sod land which is to be used for corn the next season.

Reports of migrations of eastern tent caterpillar from wild cherry and fruit trees continue from many sections. The best time to control tent caterpillars is early in the season as soon as the tents are detected.—Theo. L. Bissell and Wallace C. Harding, Jr.

Pea Aphids Controlled On Illinois Farmland

URBANA, ILL.—In southwestern and southern Illinois, pea aphids have decreased during the past week. (May 25) A fungus disease that kills aphids has spread rapidly, leaving brown, dead aphids lining the stems. Lady beetles, which feed on aphids, have also become very abundant. In addition, winged aphids have been migrating from the heavily infested fields. Diseased aphids, however, are not so evident in western Illinois, and here populations are damaging some fields of alfalfa. Throughout these areas, alfalfa is being cut to avoid further damage. It would be wise to observe these fields closely to see if aphid infestations develop on the new growth. If this occurs, treatment may be profitable immediately after hay removal to prevent stunting of new growth.

Large numbers of adult winged aphids are now appearing in pea fields and alfalfa fields in the northern sections of Illinois. Infested alfalfa fields should be watched closely. If leaves begin to curl, apply control measures.

Bean leaf beetle attacks on early beans have been reported. In most cases treatment is not necessary.

In the area of Illinois south of Highway 36, corn borer pupation averages almost 80%, and some moths have emerged in extreme southern Illinois. In the area between Highways 36 and 6 the average pupation is 30%, while in the area north of 6 the average is 12%.—H. B. Petty.

Colorado Potato Growers Warned Against Psyllids

FT. COLLINS, COL.—Colorado growers of early potatoes were warned May 17, that adult psyllids are showing up in large numbers earlier than last year.

Favorable conditions have encouraged the crop pest to migrate from host plants to young potato plants. "If we have continued rains, we may have a real psyllid problem on our hands," reported Dr. L. B. Daniels, chairman of the Colorado Insect Detection Committee and chief entomologist for the Colorado A and M Experiment Station.

A wide variety of aphids has built up rapidly in numbers during the past week in north-central Colorado. These include a heavy infestation of black cherry aphids on sour cherries in Larimer county, barberry aphid on Japanese barberry in Larimer county, a moderate infestation of willow aphids in Weld county and a heavy infestation of pea aphids in Boulder, Larimer and Weld counties. No incidence of alfalfa aphid has been reported in the state to date.

Western wheat mite is reported on the increase but not yet a serious problem in the wheat-growing sections of the state. Surveys of Logan county wheat fields indicate large numbers of pale western cutworms are present. Growers there are obtaining good control of the cutworm with insecticides.

Large populations of adult sugar beet root maggots have been noted in fields near Windsor in Weld county.

Virginians Watch for Armyworm Infestation

BLACKSBURG, VA.—The season's first report of armyworms in Virginia has been received from Lancaster county, and general outbreaks are expected during the first few days of June.

Arthur P. Morris, associate entomologist at VPI, has urged farmers to watch their grass and small grain crops closely and find infestations before the armyworms start marching. The best times to look for outbreaks are early in the morning and late in the afternoon, he says. If armyworms are present, a mass migration will begin as soon as they have exhausted the food supply in the area where found. This is when they do heavy damage to grass, corn, and small grains.

After the armyworms start marching and attacking crops, an insecticide should be used. The insecticide can be used in a 10- or 12-foot strip around an area containing armyworms, or to keep armyworms out of a certain area or crop. If this is done, it will be cheaper than treating an entire field. County agents can give complete instructions.

Mr. Morris also reports that seed corn maggots are reducing stands of corn in many parts of Virginia. This insect is probably doing heavier damage than is realized. Farmers who are getting poor stands of corn have been advised to look for this pest. Corn root webworms and cutworms are also damaging corn.

Fruit insects now causing trouble in apple orchards, or expected to do so soon, include European red mites, red-banded leaf rollers, and plum curculios. Various caterpillars or fruit worms are more plentiful than usual at this time of year in apple orchards, but to date no heavy damage by them has been reported. Leafminers, various species of aphids, scale insects and mites, are not causing any known appreciable damage at this time, Mr. Morris says.

Hay Fields Infested With Pea Aphid Pests

COLUMBIA, MO.—Pea aphids are still present in large numbers in many alfalfa fields. It is somewhat unusual for us to have much pea aphid damage this late in the season, but it is occurring this year. Nearly every field is showing a tremendous population of insects which act as parasites and predators on the aphids. These will continue to build up, although the recent cool weather has slowed them down somewhat.

Although there are some scattered fields in the southwest part of the state which spotted alfalfa aphids are hurting, this aphid is not causing extensive damage over the state. It may be present in parts of the state other than the southwest, but if it is, its numbers are very light.

Armyworms seem to be scattered over a wide area of the state, but relatively few fields are infested to the point where controls will be needed. Only small grain or pastures which are exceptionally rank are infested. In most fields where grain has lodged, armyworms can be found.

The grasshopper hatch is well under way, and in the southern part of the state, it is time to begin spraying out fence rows and other areas where large numbers of small grasshoppers may be found at this time of the year.

As yet, it is too early to predict what grasshopper populations may be this year, but farmers are advised that it is always safer to expect the worst. During a dry summer, it doesn't take many 'hoppers to cause great damage.—Stirling Kyd and Geo. W. Thomas.

NEW ENGLAND CROP DAMAGE

(Continued from page 1)

crop damage on record. The apple crop loss was set at $2,500,000. He said preliminary reports indicate that the apple crop loss might run anywhere from 75 to 90%.

In New Hampshire it was feared that the damage to apple and other fruit orchards would hit at least $1,-00,000 while unofficial crop damage n Connecticut ranged from $2,000,000 o $3,000,000. Considerable crop dam-ge was also reported in Maine, espe-ially to apple orchards. One grower figured his loss at between $40,000 nd $50,000. Another estimated he ad lost 80% of his crop.

An estimate of the damage to or-hards in Rhode Island was not ex-ected to be available for another day r so. Rhode Island farmers reported elatively light crop damage however.

It will mean substantially higher rices for consumers, Max Fultz, Mid-lesex county agriculturist agent in harge of horticulture, predicted. "Prices will go very high, if you can et fruit at all," he said.

In the Boston market garden area he most severe loss appeared to be o early corn, described by the grow-rs as their "big money crop." To-matoes, beans, squash and cucumbers were hard hit. The peach crop in Mas-achusetts was in doubt in many of he lowland sections. Blossoms have assed in this crop and the embryo each has formed, but growers said n examination showed a discolora-ion, which may mean some of this fruit has been killed.

Temperatures dropped about 20 degrees below normal to record lows. The low reading in Boston was 41 degrees, which was one degree below the record for the date set in 1925. In Fitchburg, the mercury skidded to 20 degrees, freezing the bird baths in gardens.

John F. McMasters, commodity di-rector of the Massachusetts Farm Bureau Federation, told a moving story of farmers and their families fighting the night of May 24 to save their crops. Some succeeded, he said, but many in the lowlands couldn't cope with a killer frost lasting more than seven hours, even though they burned old automobile tires to create smudge.

They covered some plants with blankets and ran from hill to hill with paper cups as coverings.

Walter E. Piper, chief marketing investigator for the state department of agriculture, said the May frost created the worst apple loss in his-tory. He said 75% of the apple blos-soms were killed for the season, and in some orchards 90%.

"Cucumber and tomato crops were destroyed in Bristol County regions. Attempts to save the bean crop in that area by plowing dirt over them was to no avail."

Crops were planted later than usual this year because of the late March storms. This made crops more tender than in many previous years.

Up in Massachusetts' Nashoba Val-ley, orchardists mournfully totaled their losses. "There'll definitely be no apple surplus this fall," said Ben Drew of Westford, former president of the New York-New England Apple Institute and owner of 200 acres of orchards. He figures the loss in his 4,000 to 5,000 trees as from 25 to 30% of the crop—"and there may be more damage than we know about now," he added. "The full extent won't be known for about 10 days. That's when the blossoms fall off and the fruit—if there is to be any—forms."

Dick Priest of Groton said his crop would be cut in half by the frost. His father, Donald, also grows apples and "he's pessimistic, figures his loss now at about 75%."

The early morning frost was the latest of several hard blows suffered by orchardists in Massachusetts. Last year's drouth was the first one. Then came this winter's extreme cold which hit the orchards, slowed work this spring, and drove even larger numbers of deer than usual into the orchards to nibble at the tender branches.

Spraying operations were two weeks behind the usual schedule, and other work, such as pruning was even more delayed, Mr. Priest said. It was expected that damage estimates may grow rather than diminish when more accurate estimates can be made.

The frost was followed by severe dust storms. The "whirlwinds," or miniature twisters which usually occur in the Middle West, struck in Methuen, Woburn, Seekonk, Warwick, R.I. and other communities. A number of persons narrowly escaped being injured by flying furniture, dust and debris.

"A dust devil," estimated to have been 100 feet high and 20 feet across at the top, roared through Seekonk and the West Shore road section of Warwick, R.I. at noon May 24. The air was filled with dirt and papers as the violent winds swept through the area.

COTTON CLINICS

GREENVILLE, MISS.—A series of cotton clinics were held recently in Washington County, featuring the inspection of plants grown from seed treated with Thimet, a new chemical. W. R. Thompson, extension agronomist; T. M. Waller, extension cotton specialist, and A. G. Bennett, extension entomologist, assisted by T. E. Berry, county agent, conducted the clinics.

Ninol Laboratories Moves to New Quarters

CHICAGO — Ninol Laboratories, Chicago, manufacturers of synthetic detergents and emulsifiers, has announced transfer of its research and development laboratories to its new plant on the south side of the city.

At the same time, the business and executive offices are being moved to larger quarters at Prudential Plaza, Chicago 1. Warehouse stocks are now maintained at Los Angeles, San Francisco, Chicago, Dallas and Philadelphia.

NEW PEST CONTROL GROUP

SALT LAKE CITY, UTAH—The Utah Pest Control Assn. was formed here recently, with Levi Hunt, Salt Lake City, as president. Other officers are Joe Laub, Clearfield, vice president, and Ivan Olsen, Ogden, secretary.

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liquid fertilizer mixing plant

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Now, in one "package," you can get a complete liquid fertilizer plant like the one shown here. Everything you'll need for profitable operation is included: storage tanks, heat exchangers, controls, mixers, meters—even the building for the mixing operation and office area. All are Butler-engineered and Butler-built to meet your exact needs and fit your market area. The entire plant is complete and ready to go when it's turned over to you. And with Butler's specialized tank fabrication facilities and fast erection of pre-engineered Butler metal buildings, you're in business sooner, at less cost. Get the important details—write or call today.

New 10-ton-per-hour mixing plant near Lawrence, Kansas was recently designed and built by Butler for Kaw Fertilizer Service, Inc. Black steel tanks were furnished by Butler for storage of aqua ammonia and mixed fertilizer. One tank is equipped with a plastic Flexi-Liner for storing 75% phosphoric acid.

Butler metal building provides permanent, economical shelter for mixers, controls, and field application equipment at Kaw Fertilizer Service.

Anhydrous ammonia is converted into aqua ammonia from tank cars and transports with this Butler-designed converter and heat exchanger.

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Granular Insecticides Give Good Borer Control in Tests

MADISON, WIS.—In tests with canning corn last year, J. W. Apple, University of Wisconsin entomologist, compared corn borer control with granulated DDT and EPN insecticides applied from airplanes and from a high-clearance ground distributor. Also compared were the granulated and conventional spray formulations of DDT.

To make granulated insecticides, small clay particles are impregnated with liquid insecticides. Some 30,000 acres of dent and sweet corn were treated with granulated DDT in the corn belt last summer.

Dr. Apple says insecticide granules are effective because they get into the plant whorl, where young corn borers congregate on small plants. Other advantages of the granulated insecticide, he says, are that lower dosages of insecticide are needed, it is easy to handle and flows freely from simple distributing devices.

Dr. Apple found that borer control with an airplane was comparable to a ground distributor. Dosages of 0.4 lb. of EPN or 1-2.3 lb. of DDT granules per acre gave 73-86% control in airplane tests.

With granulated insecticides applied with a ground machine control was a little better, and EPN gave control at a lower dosage than DDT. Two applications of 0.44 lb. of EPN granules per acre gave 100% control, and one application gave about 95% control. A single treatment of 0.2 lb. of EPN gave 84% reduction in borer numbers.

Two applications of 2.4 lb. per acre of DDT in granular form (five per cent) gave 96% control while one application of one to two pounds of DDT per acre gave 82% to 84% control. However, DDT is cheaper per pound than EPN, so Dr. Apple figures the're about equally effective dollar for dollar. But EPN and other phosphate insecticides in granule form seem promising because the residues on crop remnants which might be fed to livestock are less troublesome, Dr. Apple said.

Pest Control Saves Nearly $14 Million For Illinois Farmers

URBANA, ILL.—Illinois farmers who used insect control measures recommended by the state saved almost $14 million in crops last year, according to Dr. Harlow B. Mills, chief of the Illinois Natural History Survey.

He said that treatment of 1,532,859 acres of cropland for the control of the 10 most important insect pests resulted in savings of $13,983,955.

Dr. Mills said that at the peak of the fly season production of unsprayed dairy herds was 20% below that of herds on which some recently developed insecticides were used for fly control.

William E. Swart

MANAGER NAMED — William Swart has been appointed manag of the Lubbock, Texas, branch of t Thompson-Hayward Chemical Co., was announced recently by Robe S. Thompson, president. Mr. Swa an entomology and agricultural gra uate of Oklahoma A&M, former served as a Thompson-Haywa salesman for western Kansas. He w headquartered in Wichita. He has extensive background in handli sales of agricultural pesticides, vit min feedstuffs, fumigants and ge eral industrial chemicals.

Dr. Ernest N. Cory, Maryland State Entomologist, Honored

COLLEGE PARK, MD.—Dr. E nest N. Cory, state entomologist a head of the University of Maryla entomology department was honore at a testimonial dinner recently. D Cory who will be 70 in August w retire after 47 years at the universit

Nearly 500 guests looked on as D Cory was presented a bound colle tion of several hundred personal le ters from his friends. A portrait Dr. Cory was unveiled and a fun bearing his name was established t aid worthy students in the College Agriculture at the university. As pe sonal gifts, both Dr. and Mrs. Co were presented luggage.

Dr. Cory was born at Alden, N.Y in August 1886. He earned his bache lor's degree from Maryland in 190 a master's degree in 1913 and in 192 he received his Ph.D. from America University. While a student at Mary land, Dr. Cory was active in sport and was captain of the football tea in 1908.

In 1914 he became head of the en tomology department and state ento mologist. He has also served as assis ant director of the Extension Servic consultant for the State Departmen of Health, scientific advisor of th American Orchid Society, president the Washington Entomological Soc ety, the American Association of Eco nomic Entomologists and the Nation al Shade Tree Assn.

Velsicol Chemical Corp. Promotes Three at Marshall, Ill., Plant

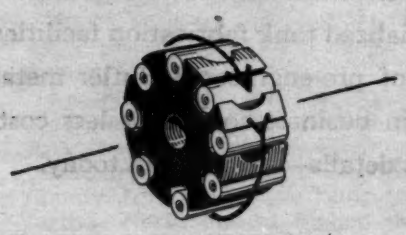
CHICAGO—W. K. McCready, Di rector of Manufacturing for Velsico Chemical Corp., has announced th following personnel promotions at th Velsicol Marshall, Ill., plant:

Wilson C. Keyes, formerly produc tion superintendent, has been appoint ed to the newly created position assistant plant manager.

The new production superintende is John Rex who had been technic assistant to the plant manager.

Robert Tiefel takes over anothe new post, that of assistant super intendent of the reduction area. Pre viously, Mr. Tiefel served as a devel opment engineer.

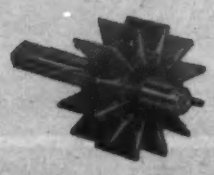
The famous HYPRO ROLLER IMPELLER is also available in general purpose pumps for home use



BRONZE MODEL B610 with 1-in. ports and 4 rubber rollers delivers up to 17 gpm at 1750 rpm.

¾-IN. MODEL B634 is popular size for many uses. At 1750 rpm it delivers up to 8½ gpm.

HANDY MODEL B638 has hollow shaft for direct motor mounting and ports with garden hose threads.



SELF-PRIMING FlexROTOR pumps with HYCAR rubber impellers are offered in the same sizes as the roller types above.

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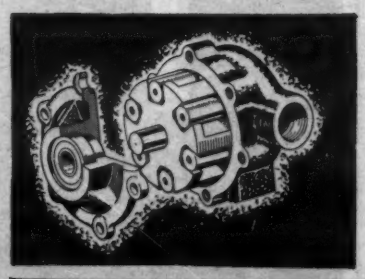
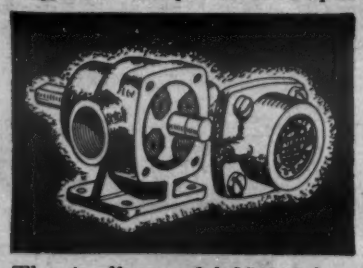
MODEL N7500 DEVELOPS UP TO 350 PSI, DELIVERS UP TO 22 GPM

HYPRO originated this nylon roller pump *for all-around farm sprayer service*

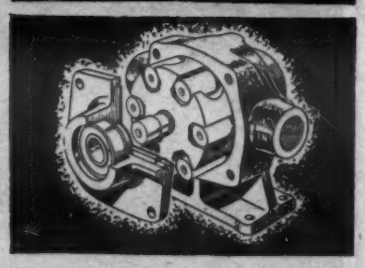
Some sprayer pumps develop only limited pressures. Others wear out rapidly when pumping water containing wettable powders. Still others can't handle liquid fertilizers or soil fumigants. Hypro was first to answer all these problems with its long-wearing *and* corrosion-resistant Ni-Resist pumps with water-lubricated nylon rollers.

Model N1560 delivers up to 60 gpm at 150 psi at 1100 rpm.





The 4-roller model N4000 has all the high-grade features of the larger industrial pumps. It delivers up to 9 gpm at 1750 rpm. There are 18 variations of this model.



The 6-roller model N6000 can be operated up to 1200 rpm for pressures to 200 psi or delivery to 13 gpm. Like others, it has ball bearings, stainless shaft, replaceable seals.

PORTABLE PUMP
Pump out basements, fill tanks, bail boats or what-have-you with this handy motorized pump.

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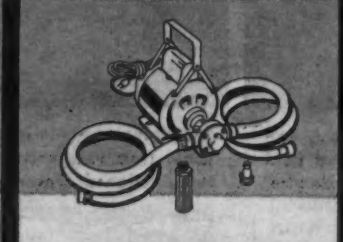
Use FREE WATER from shallow well, stream, or lake with this engine-driven (or electric) pump.



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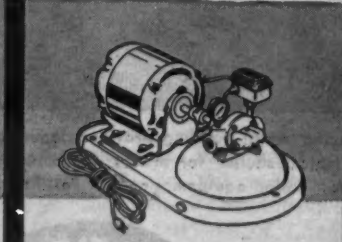

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ower Output Not nswer to Cotton urplus, Speaker Says

LUBBOCK, TEXAS — The answer the cotton surplus problem lies in curtailed production but "in ore markets and more acreage—a namic consumption geared to our namic production capacity," Burris Jackson, Hillsboro, chairman, merican Cotton Congress, declared a keynote address before the 17th nual meeting of the congress here ay 31.

Lower costs, improved quality and gressive promotion provide a ree-point formula for cotton to ild greater markets and achieve namic consumption, he emphasized.

While it is true that every effort ust be made to increase cotton pro- ction efficiency in a way that will ve the farmer a reasonable profit d still not price his fiber out of e market, the industry must look st that immediate goal, he said. must continue to press toward eater ginning efficiency and cost vings in processing cottonseed, to onomics in merchandising and in ndling bales and in manufacturing e raw fiber into the finished textile.

Mr. Jackson lauded the progress at has been made in greater pro- ction efficiency in the High Plains ea, which accounts for more than tenth of the nation's total cotton op and provides an income of better an $225 million annually at the rm level.

"Here is a region, more than any her, truly adapted to mass produc- on, to high volume and low unit sts," he said. "Here truly is an ea where low-cost production and ocessing have a chance to reach eir optimum."

ittle Virus Damage een in Kansas Wheat

MANHATTAN, KANSAS—Kansas heat farmers will have fewer wor- es about wheat streak and soil rne mosaic viruses this year than y time in the last eight years.

That is the prediction by Webster ill Jr., who is in charge of Kansas tate College studies of viruses af- ecting small grains, and Hurley ellows, U.S. Department of Agri- ulture plant pathologist stationed at anhattan.

Streak mosaic, which caused losses stimated at $30 million in 1949 and 14 million in 1954, is not expected o cause damage of commercial sig- ificance anywhere in the state this ear. Mr. Sill and Mr. Fellows found nly scattered plants which were in- ected in a statewide survey, com- leted the middle of May.

Soil borne mosaic, never the threat hat streak mosaic has been, will ause damage of commercial signifi- ance only in the northeastern corner f the state this year. The two plant athologists found a number of in- ected fields in this area, but re- orted damage has been relatively ight. Heaviest losses probably will ccur in Atchison and Brown coun- ies.

oins Michigan Chemical

ST. LOUIS, MICH.—John A. Hol- erried has joined the research staff f Michigan Chemical Corp., St. ouis, Mich. His appointment is part f the current expansion of the com- any's development program, accord- ng to the announcement of Dr. Dwight Williams, director of re- earch.

PRODUCTIVE VALLEY

FRESNO, CAL. — The eight coun- ies in California's San Joaquin Val- ey produced $1.3 billion worth of arm products in 1955, an increase of 60 million from 1954.

Severe Winter Damage To Oregon Fruit, Nut Trees Reported

PORTLAND, ORE.—The Portland office of the Federal Crop Reporting Service has verified grower and trade reports of winter damage to Oregon fruit and nut trees.

The agency emphasized that the outlook for tree fruits varies considerably in the districts, but that Milton-Freewater prune and cherry trees will produce little fruit this season because of freezes.

Damage is not as serious at The Dalles and Hood River, but these sections will produce relatively lighter sweet cherry and Newtown apple crops.

Many Willamette valley walnut and filbert growers have just about written this year's crop off the book because of severe winter damage suffered by their trees.

The past weeks of warm weather not only emphasized damage that will cause some growers to remove hundreds of trees, but also showed growers that there is hope for some trees.

Palmer Torvend, Washington County agent, who has been closely working with growers, admitted there is going to be a very light nut crop this fall and maybe for the next two or three years, but he emphasized that growers should not be hasty in uprooting trees.

"Many trees were badly damaged by the freeze, but there are indications that the majority of them will gradually come back into production if they get the right care from growers," Mr. Torvend declared. "It takes a long time for new trees to produce any kind of crop and orchardists will find it worthwhile to nurse old trees back to normal wherever possible."

The strawberry crop situation appears better than first indicated. The U.S. Department of Agriculture forecasts a 1,942,000 crate crop, down 21% from last season, but 36% above average.

Pacific Northwest winter wheat plantings were damaged by the severe winter weather and the May 1 forecast of 78,696,000 bu. was 8,500,000 bu. under the April 1 forecast, 30% below the 1955 crop and 38% below average.

Inspection Act

HARRISBURG, PA. — Fertilizers and feeds would undergo a state inspection in Pennsylvania under a compromise proposal that has won House approval. Under the new version, a charge of 2¢ a ton would be made for the inspection of all feeds and fertilizers.

AGRONOMY DAYS

MORGANTOWN, W. VA.—Agronomy day at the Reymann Memorial Experimental Farms at Wardensville, W. Va. will be held June 22, according to Gordon G. Pohlman, agronomist for the West Virginia Agricultural Experiment Station. Agronomy day at the Ohio Valley substation at Pt. Pleasant will be held Aug. 9.

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Use
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State Agricultural Experiment Stations and other authoritative sources are recommending fertilizers with ever increasing plant food units per ton. High analysis fertilizers are in demand because they give more for each fertilizer dollar. Meet this demand by incorporating Davison's New Triple Superphosphate in your formulation.
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WORLD REPORT

By GEORGE E. SWARBRECK
Croplife Canadian and Overseas Editor

World consumption of nitrogen for both fertilizer and industrial purposes during the year ended June 30, 1956 has been estimated by Aikman (London) Ltd., at 7,260,000 tons. This represents an increase of only 45,000 tons over the total consumed in the year ended June 30, 1955.

The estimate, made in Aikman's latest half-yearly report, is far short of the figure put forward six months ago. The reduction is attributed to several reasons. One is the severe winter in Europe which destroyed crops and led to considerable replowing. Another reason is the expectation that consumption in the U.S. will decline about 12% in the year under review because of the twin problems of surpluses and falling prices. A consequence of the increased capacity now available at many factories, Aikman comments, is overproduction in comparison with demand.

In 1955-56 production was estimated at 7,930,000 tons against the anticipated consumption of 7,260,000 tons. (These figures exclude USSR.) In 1956-57, Aikman estimates that production will surge to 9,020,000 tons, with a further jump to 9,855,000 tons in 1957-58. In 1952-53, production at 5,830,000 tons exactly matched consumption; thereafter, the imbalance started to grow as new units came into operation.

Russian Output

USSR is reported to be planning a rapid expansion in the production of nitrogen. Under the current five-year plan it hopes to double output from 800,000 tons in 1954-55 to 1.6 million tons in 1959-60. But Aikman doubts the ability of the Russians to reach this target. Nevertheless, there is little doubt that Communist output will be raised in the next few years and that consumption will increase correspondingly.

Demand for nitrogen in Red China is also on the upswing, Aikman reports, and though production is also increasing, considerable amounts will have to be imported. It is suggested that China could become an outlet for the excess U.S. production, estimated at 300,000 tons.

So many new producers have come into being in the U.S. that pressure to export is bound to grow, Aikman considers. Currently, shipments abroad are limited by high freight charges. And U.S. government regulations covering trade with Communist countries will have to undergo some revision to permit business.

Fertilizer Film

A 20-minute 16 mm. movie has been released by the National Grain Co., Ltd. of Winnipeg showing the results obtained by the application of nitrogen in varying combinations to land seeded to wheat, oats and barley. More than 100 farmers in the three prairie provinces assisted in carrying out the experimental project, believed to be the first of its kind in Canada, by planting demonstration plots in 35 areas from Winnipeg to the Peace River.

The average increase in yield was 8.6 bu. to the acre for wheat, 16 bu. for oats and 9.3 bu. for barley.

Expansion Planned

North American Cyanamid Co., Ltd., plans to triple its production of Amino Triazole, a new herbicidal and leaf-stripping chemical. Completion of the project is set for next year.

The company states that its decision to start construction of "extensive facilities" at its Welland, Ont., plant was reached after research showed the product's usefulness to agriculture by killing weeds and grasses and by leaf-stripping cotton to facilitate harvesting.

The Welland plant, one of the biggest in Canada, produces ammonium nitrate and nitro-solution fertilizers for the company's agricultural chemical division.

Foreign Visit

Four members of the Geneva Works engineering department, United States Steel Corp., who are working on an anhydrous ammonia plant project, are visiting European chemical plants to study operating techniques. They are Gordon Bywater, project engineer, Harvey Edwards, Boyd Erickson and C. E. Clarkson.

Visited were plants in Germany, France, Belgium and Italy including the Navarro plant of the Monticatini Chemical Co., near Milan.

International Conferences

Two trade conferences, one recently held in Britain, the other coming up in June, are noteworthy because of their wide international attendance.

The International Superphosphate Manufacturers' Assn. held a four-day conference in London during May and 185 delegates came from 21 countries. The program included reports of progress in the production of superphosphate throughout the world, and details of applications which are assisting in raising the world's food production. Future activities were also planned.

The other meeting is the International Conference on Crop Protection which is scheduled to take place at Fernhurst Research Station from June 19 to 21. About 200 delegates will be on hand, half of them from overseas countries and the speakers will be drawn from several countries.

Russian Exports

Under a trade agreement recently concluded Russia is to export 80,000 tons of raw phosphates to Denmark. Delivery will be spread over a period of two years.

Delivery Delays

From many countries come reports of difficulties in obtaining deliveries of fertilizer during the spring sowing season. Farmers everywhere have been neglectful of the warnings given them to order early and to take delivery as soon as possible.

British manufacturers are so bogged down with orders from farmers that they have had to suspend exports of nitrogenous fertilizers. This led to questions in the House of Commons concerning the sufficiency of productive capacity in the country.

The government says that capacity is sufficient to meet the full domestic requirement and to allow a small margin for export. However, at times of peak demand overseas orders cannot be fulfilled. The manufacturers state that in the year ending June 30, 1956, their exports will total 26,000 tons, nitrogen content.

Maurice J. Gole, Crop Duster, Killed

MEMPHIS—One of the most widely-known crop dusters in the Mississippi Delta, Maurice J. Gole, crashed to his death recently at Rich, Miss., when his plane stalled about 100 feet off the ground.

Mr. Gole, 32, moved to Fort Lauderdale, Fla. two months ago, and had returned to Lula, Miss. only recently to do some crop dusting in the area. Witnesses said the plane climbed to a height of about 100 feet, stalled and crashed. It hit no obstruction.

Mr. Gole had done extensive work in the Delta for the past six or eight years, and until he moved away, was a member of the town board of aldermen at Lula. His firm was known as the Gole Crop Dusting Co.

Fairfield New York Office Has New Address

NEW YORK—The Fairfield Chemical Division of the Food Machinery and Chemical Corp., Baltimore, has announced the change of address of the New York sales office, under the direction of John F. Odeneal, from 420 Lexington Ave., New York 17, to 441 Lexington Ave., New York 17. The new telephone number will be Oxford 7-1940.

Mr. Odeneal is a graduate of Dartmouth College from which he obtained his bachelor of arts degree. During World War II Mr. Odeneal served with the Office of Strategic Services. For the past six years he has worked in technical sales for Fairfield and during the past year has served as chairman of Fairfield's New Products Committee.

Named by Crowley

NEW YORK—William J. Jennings has been elected executive vice president of Crowley Tar Products Co., Inc., according to an announcement by D. L. Crowley, president.

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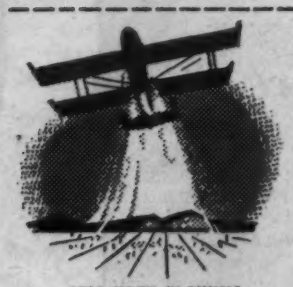
IT'S PRILLED



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A SPECIAL CROPLIFE DEPARTMENT TO HELP RETAILERS IMPROVE MERCHANDISING KNOW-HOW

$150,000 IN FOUR YEARS

Twelve-Point Program Builds Sales for New Mexico Dealer

By JESS F. BLAIR
Croplife Special Writer

Paul Sparkman, owner of Sparkman's, Truth or Consequences, N.M., has built a lucrative trade with the gardeners and small acreage owners who live near this health resort town.

The farming area sets in about 20 miles down the Rio Grande, where the river tumbles out of the hills into an ever-widening valley. Mr. Sparkman knew he could reach only a few of these farmers, so he set about to build up a trade among the garden, orchard and suburban farmers.

After about four years, he is doing $150,000 worth of business annually with these people and with a few big ranchers.

His methods of achieving success might be described as follows:

1. To compete with department stores, he knew he had to offer a personal service. Now when a new product comes out, Mr. Sparkman gathers all the information available on it. By the time the first sale is made, he knows the item's contents, what it will do, method of application, and any dangers that might occur from improper handling.

2. He works closely with the county agricultural agent, government agricultural agencies and experiment stations. He has had dozens of soil samples analyzed at his own expense. He knows every type of soil in the area, its fertility, kinds of fertilizers needed for each plant, and the diseases and insects common to the locality.

3. He stocks a good supply of tools to do the job. Many residents are health-seekers who decided to stay near the health-giving hot springs. Nearly all of them love the outdoors and want to grow gardens, orchards and raise flowers.

Mr. Sparkman keeps regular tools, but stocks long-handle implements so the arthritic victims can do light work without bending.

4. Advertising. He never lets people forget that Sparkman's is the place to buy plants, fertilizers, insecticides, herbicides, feed and garden and farm tools. He uses both radio and the local newspapers liberally.

5. Civic affairs. Mr. Sparkman has been on about every committee in town, and spends at least an hour a day on city and county affairs. It is not wasted time at all. Aside from the feeling of doing something worthwhile for his community, he meets many people who become his good friends and customers.

6. He has departmentalized the store so customers can instantly find what they want and wait on themselves.

"Often I'll have six or eight customers at once," Mr. Sparkman said, "and all I have to do is stand at the cash register, or maybe wave a puzzled customer toward a counter where the item is located."

7. Being friendly. On the day of this interview a lady came in to buy a 10¢ packet of garden seed. It was a revelation in human relations to see how Mr. Sparkman made her feel at home. Twenty minutes later the lady was back and bought a garden rake and a 100-pound sack of peat moss.

"You never know when a small purchase will lead to bigger ones," he said.

8. Working with the big ranchers of the area. By stocking a good supply of feed and livestock remedies and supplies, he has built a good trade with these cattlemen. They buy seldom but in huge quantities, so Mr. Sparkman has learned to anticipate their seasonal needs.

9. Believe in the products he sells. Mr. Sparkman is an ex-farmer himself, who moved to Truth or Consequences because of his wife's health. After she recovered, they decided to stay. So loving the soil like he does, running such a store gives him much personal satisfaction.

"Liking a job gives you a fifty per cent edge on the other fellow," Mr. Sparkman said.

10. Keeping good records. He keeps a meticulous set of books and can determine at any time just what the business is doing.

11. Keeping a close rein on credit.

"This credit thing has broke more men in this business than any one thing," he said. "If a man charges one item, I say little about it. But when he asks for credit the second time, I collect on the previous item.

"Refusing credit is a ticklish thing, but if you check up on a man who charges something, you can usually determine if he is a good risk. Once people learn that you expect to be paid for items purchased, not many of them will abuse their credit."

12. Holding down overhead. Mr. Sparkman does $150,000 worth of business a year, yet outside of himself and his wife, he has only one full time employee. They manage the business by keeping the store well organized, and planning ahead. He orders seasonal goods well ahead of time, working on his books at night or in idle time, and holds down idle chatter and visiting in the store to a minimum.

"I like to see friends as well as anyone," he said. "But wasting an hour in idle talk with someone is wasting the hour for both of you. The store is a place for friendliness, for swapping information, but most of all, it is a place to dispense information and merchandise."

New Soil Tests Available in Oregon

CORVALLIS, ORE.—A new soil testing service is now available to Oregon farmers, according to Dan Evans, soil scientist in charge of the soil physics laboratory at Oregon State College. The new service will measure two physical qualities of soil —the approximate amount of water the soil will hold one day after a heavy rain or complete irrigation, and the amount of water still in the soil when plants wilt from lack of available moisture.

SHOP TALK OVER THE COUNTER FOR THE DEALER

By EMMET J. HOFFMAN
Croplife Merchandising Editor

What qualifications should the farm chemical dealer have in order to do an outstanding job of serving his customers? What contributions can the dealer make for the economic betterment of the farm community?

There is evidence that the well-qualified dealer is contributing greatly to increased agricultural production across the nation, it is convincingly stated in a bulletin published by AFC, Inc., Edison, Cal. The relation of the dealer to proper chemical management and the resultant increased production are told in the bulletin in the following manner:

"The growing trend in agriculture is toward scientific practices among farmers throughout the country. The progressive growers of California have been quick to adopt improved methods soon after such practices have proved out in the field and effectiveness been established. This is one important reason why, in 1955, agricultural production in California exceeded that of any previous year.

"Probably the most important or key factor in scientific farming is chemical management. By this we mean the application of chemicals, of established effectiveness, at the proper time, in the prescribed quantity, by means which will result in efficient placement, to correct, alleviate, or protect against conditions which may reduce yield, lower quality, or retard or interfere with harvest of crops.

"Principal conditions referred to may be: Deficiency of soil nutrients or essential minerals, soil content of alkaline salts, excessive soil acidity, presence or likelihood of immediate infestation of destructive insects, strong possibility of plant disease or adverse bacterial or organism destructiveness, presence of noxious weeds or grasses which compete with crops for nutrients, water and sunshine.

"Since the operations of the modern farmer are geared to chemical agriculture, the services of his chemical supplier play an extremely important part in his farm management. In order to meet the demands of scien-

(Continued on page 13)

By RAYMOND ROSSON
County Agent, Washington County, Tenn.

We have here in Washington County, Tennessee, 24 test demonstration farms. As carriers of research the county agent can bring to these demonstration farms research from any source, and from them practices spread in their respective communities and then over the county.

Considering the four years of drouth, the following figures might not be too poor. All figures and amounts are average for the 24 farms.

Cleared land, 127 acres per farm; 10 acres of row crops per farm; 23 acres of alfalfa; 5 acres of corn; 61 bu. corn per acre; 1.55 acres tobacco per farm; 2,150 lb. tobacco per acre.

Number of animal units per farm 42; number of cows on grade A dairy farms 37.3—milk sales per cow on grade A farms 6,283 lb., number of cows on grade C dairy farms 11.3—milk sales per cow on grade C farms 4,317 lb.

Average number of hens on farms producing eggs commercially 1,020; number of eggs per hen 201.6; average sales of livestock and livestock products $11,320; sales of livestock and livestock products per cleared acre $88.86; average crop sales per farm $2,032.

Average total cash receipts per farm $14,575 or $114.41 per cleared acre; total cash expenses per farm (including new machinery, building and fence improvements, and livestock purchased) $11,646; average net cash income per farm $2,929; average capital inventory value per farm $43,373; average labor income and interest on investment $3,426.

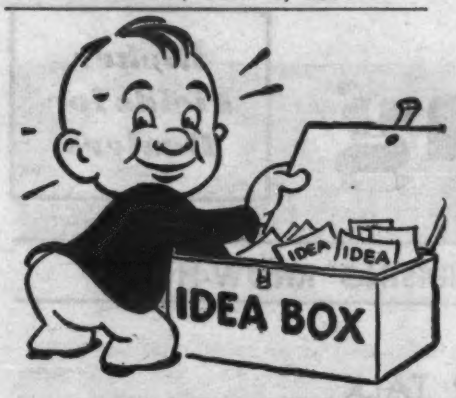
Average spent on new machinery $830.00; amount spent on buildings and fences $606; average cost of fertilizer per farm $653 (this amount is about 60% of normal because of four years of drouth).

Calspray Issues New Garden Book

Directions for a "build-it-yourself" plant stand and an order blank for Claire McCardell's garden smock designed especially for Ortho are two of the features in the new Ortho Garden Book, published by the California Spray-Chemical Corp. and available free from Ortho dealers.

Other features of the book include the A-B-C's of pest control; the "how-to" of spraying and dusting; care of roses, shrubs, ornamentals, and fruit trees; and how to grow and maintain a healthy, hearty lawn.

Special sections are devoted to annuals, perennials, bulbs and vegetables. For garden clubbers, Ortho has included a list of color-sound motion pictures on gardening which are available free of charge from the California Spray-Chemical Corp.



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6419—Applicator

Details of a universal hitch applicator are available from the Pollard Manufacturing Co. Company officials state that the hitch permits rear mounting the mixed liquid fertilizer applicator to all tractors, regardless of model or age. Six-row and 8-row models are available. Boom height is adjustable. Secure more complete details by checking No. 6419 on the coupon and mailing it to Croplife.

No. 5461—Bag Manuals

Results of research into phases of multiwall packaging are now available for reference through a series of manuals issued by the St. Regis Paper Co. The manuals are designed to aid in cutting costs by solving packaging problems, according to the Company's announcement. Handbooks issued thus far include a palletizing manual, a multiwall bag papers manual and a printing manual. The palletizing manual describes how multiwall paper bags are handled as pallet and unit loads. It incorporates publications and material made available by pallet manufacturing associations, fork lift manufacturers and others in the palleitzing field. The identification and application of the various papers available for use in multiwall bag construction is outlined in the multiwall bag papers manual. To provide a working knowledge of the types of printing processes and equipment, the printing manual reports on the many methods of printing now being used. Subject material includes types of inks and paper, printing plates and multiwall bag printing. Each of the manuals is illustrated with charts, photographs and drawings. To secure the manuals check No. 5461 on the coupon and mail it to this publication.

No. 5448—Side Seam For Bags

A new overstitched side seam for burlap bags, which is said to eliminate raveling of loose weft yarns on the cut edges of the burlap, has been introduced by the Bemis Bro. Bag Co. The seam is called the "Edge-Lock." Loose weft yarns coming loose and mingling with the product packed has long been a problem with burlap bag users, and has become increasingly so with the growing trend toward automatic feeders, automatic seed planters and other mechanized farm operations, according to company officials. Reports indicate that the seam completely eliminates the loose weft yarn problem, they state. Secure more complete details by checking No. 5448 on the coupon and mailing it.

No. 6421—Speedometer

Details of a farm speedometer used to coordinate over-the-ground speed of farm equipment with the flow of anhydrous ammonia are available from the manufacturer, the instrument division of Stewart-Warner Corp. The company states that the unit, installed either on a tractor or rig, registers the actual speed and total distance traveled regardless of varying tire sizes, gear ratios, slippage, etc. The speedometer registers speeds up to 10 miles per hour and comes in a complete kit. To secure more details check No. 6421 on the coupon and drop it in the mail.

No. 6420—Potash Booklet

A new booklet, entitled, "Potash in Agriculture," has been prepared by the American Potash Institute, Inc. Single copies are available without charge but quantity shipments necessitate a charge for the actual cost of printing, according to institute officials. Sections are devoted to background information about potash, its use in plant nutrition, potash in soils, diagnosing needs, potash fertilizer materials, application, crop response and history of the product. A number of pictures and diagrams are part of the 34-page booklet. Check No. 6420 on the coupon, clip and mail it to secure the booklet.

No. 6415—Booklet o Pyrethrum

"Facts for 1956 About Afric Pyrethrum" is the title of a book prepared by African Pyrethrum velopment, Inc. The booklet's int duction states that the product's as an insecticide gives qualities quick knock-down, economy in l er concentrations with synergi rapid dispersal and high penetrati Also included in the booklet are s tions on Pyrethrum's background a how it is grown in Africa and p cessed from the Pyrethrum bloom flat white flower with a yellow c ter. Secure the booklet by check No. 6415 on the coupon and dropp it in the mail to Croplife.

No. 6416—Soil Moisture

A slide film with an accompany 25-min. recorded commentary on h soil moisture measurement works a the benefits it can provide has b prepared by the Rayturn Corp. T film deals with soil moisture-pla growth relationships and with t control of irrigation through s moisture measurement. The slide fi is available at no charge for dividual meetings and at cost f permanent use. Check No. 6416 the coupon and mail it to secu more complete details.

No. 6417—Educatio al Booklet

The Manufacturing Chemists Ass Inc., has prepared an educatio booklet in behalf of the chemical i dustry, entitled "Frontiersman of t Future." "Young people who are co sidering the field of chemistry tod will have a hand in the shaping tomorrow," according to the bookle The contributions made by chemica such as in fertilizers, soil conditio ers, weed killers, insecticides a plant disease treatments, are d scribed. "The demand for chemist graduates has exceeded the supp for many years," according to th booklet. To secure the booklet chec No. 6417 on the coupon and mail to Croplife.

No. 6418—Sprayer

New literature has been prepare by the Spra-White Chemical Co. o its sprayer line, called by the trad name, Spray-Master SM-3KW. Com pany spokesmen state that th sprayer provides ample pressure an capacity to handle the spraying o trees, orchards, vineyards, parks nurseries, roadsides, heavy brush etc., and can be used with fungicides insecticides, herbicides and othe liquids. The unit consists of a piston type pump which delivers 12 gal. pe minute at 400 lb. pressure, it i claimed. Other characteristics: Th unit has a single-cylinder 4-cycle air cooled 3.6 h.p. engine; pressure con troller, it is portable, has mist-to stream adjustment and a pressur variation from 30 to 800 lb. pe square inch. Secure additional infor mation and literature by checkin No. 6418 on the coupon and mailin it to Croplife.

No. 6413—Protective Coatings

The Shutt Process Equipment Co announces its new system of statisti cal evaluation and selection of pro tective coatings, called the All-Coa engineered coating system. It i claimed to permit selection of opti mum type of topcoat, primer an surface preparation specification which under given environments an contemplated maintenance proced ures, results in the lowest mainten ance cost for an indefinite time. The basis of the system is a statistica study for the past 10 years on vari ous corrosive environments and in cludes consideration of chlorinate rubber, vinyl, fish oil, alkyd-phenol

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 5452—Insect Control

New equipment for spreading insecticides through a barn or building —called barn fogging—is announced by the Electric Sprayit division, Thomas Industries, Inc. Barn fogging equipment consists of a large sprayer which can be attached to a compressor. The company's unit, called by the trade name, Fogmaster, consists of a half-gallon Pyrtox unbreakable bottle with a four-spray nozzle of non-corrosive brass. The nozzle is capable of a 40-ft. carry in all directions and can be operated with 30 to 40 lb. of pressure, it is claimed. This model will fit all sizes and types of compressors without adaptors and will spray both water and oil base insecticides. Company officials state that the unit will keep a 70x35-ft. barn insect-free with only 10 min. spraying a day. Secure more complete details by checking No. 5452 on the coupon and mailing it to this publication.

Send me information on the items marked:

☐ No. 5416—Weigh System	☐ No. 6413—Coatings
☐ No. 5443—Grain Fumigant	☐ No. 6414—Applicator
☐ No. 5448—Bag Seam	☐ No. 6415—Pyrethrum Booklet
☐ No. 5450—Bag Sewer	☐ No. 6416—Soil Moisture
☐ No. 5451—Bag Closing Heads	☐ No. 6417—Booklet
☐ No. 5452—Insect Control	☐ No. 6418—Sprayer
☐ No. 5454—Spray	☐ No. 6419—Applicator
☐ No. 5461—Bag Manuals	☐ No. 6420—Potash Booklet
☐ No. 6411—Dust Mask	☐ No. 6421—Speedometer

NAME .....

COMPANY .....

ADDRESS .....

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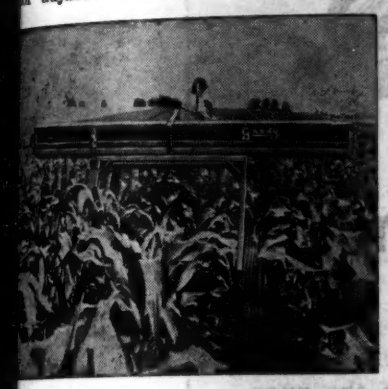
…, neoprenes, bitumens, phenolics, …ranes and the more recent epoxys …d isocyanates. The resultant selec… is said to be based on a summa… …n of all factors which affect the …tal cost of a system including …emical resistance, surface prepara…, thickness, labor, aging proper…, coverage, cost and adhesion. Se… more complete details by check… No. 6413 on the coupon and mail… it to this publication.

No. 6414—Applicator

Corn borer control by use of a …w machine called by the trade …me, Gandy Hi-Lo insecticide appli…tor, is announced by the manu…cturer, the E. S. Gandrud Co., Inc. …ompany officials state that the ap…licator drops metered amounts of …y chemical granules into corn …horls to kill corn borers as they …y to enter the stalk. The applica… …r adjusts to heights of 2½-5 ft.



…nd spreads to 12- to 14-in. ribbon of …ranules over each of four rows. The …ranules combine with dew and rain …ater in the corn whorl to form a …oncentrated solution at the point …here the newly-hatched borer at…acks the stalk, it is claimed. Since …ranules stay only in the whorl, DDT …ontamination is greatly reduced, the …fficials state. A tractor-drawn unit, …he applicator drops the granules …fter plants have returned to an up…right position. Dry chemical granules …re dropped into corn whorls. Secure …more details by checking No. 6414 …n the coupon and mailing it to Crop…life.

No. 5454—Spray

Two forms of Lindane spray for grain elevators, boxcars, granaries and flour mills are described in a new leaflet prepared by the E. H. Leitte Co. One is a 1% Lindane spray solution (ready-to-use) and the other is a 20% concentrate bin and mill spray (water miscible). Both forms are said to be effective in the control of granary weevil, rice weevil, saw-toothed grain beetle, confused flour beetle, Mediterranean flour moth, cadelle, roaches and other insect pests. Residual effectiveness is said to be from four weeks to five months. To secure the leaflet check No. 5454 on the coupon and drop it in the mail to this publication.

No. 6411—Dust Mask

Flexo Products, Inc., has prepared a new folder on its dust mask, called by the trade name, Flex-A-Foam. The folder states that the mask weighs one ounce, filters non-toxic dusts as small as 125,000 of an inch, permits easy breathing and has four long-wearing, interlocking parts—all washable. A price chart for the masks, filters and headbands is included in the folder. To secure it check No. 6411 on the coupon and mail it to Croplife.

No. 5416—Weigh Batching System

An electronic weigh batching system that will work in conjunction with IBM's punch card system has been developed by the Heltzel Steel Form and Iron Co. Called the Helco-matic Batchmaster, the unit is said to have application in the feed, grain, fertilizer, chemical and other fields. The new unit is housed in a console the size of a standard filing cabinet. Through the use of IBM punch cards, the unit automatically selects and weighs out the precise amount of any number of materials, the company states. The combinations of material weights and selections are varied and can be changed instantaneously. Where repetitive batches are required, the unit provides for automatic recycling. A moisture compensating feature is provided. A controlled closed circuit practically eliminates the possibility of malfunctioning due to vibration, moisture or dust, it is said. Push buttons for all controls are provided for manual batching of individual materials. Secure more complete details by checking No. 5416 on the coupon and mailing it.

No. 5443—Grain Fumigant

New literature concerning its grain fumigant, "80-20," is available from the Stauffer Chemical Co. The product is described as a formulation for control of insects infesting bulk-stored seeds and grains in farm bins, granaries and elevators. Application instructions for railroad cars and elevator and farm bins—including large and small structures—are available. Fumigation during mild weather is suggested for best results. Dosage and precautionary information are also provided. Secure the information by checking No. 5443 on the coupon and mailing it to this publication.

No. 5451—Bag Closing Heads

The Union Special Machine Co. announces the development of a new class of bag closing machine sewing heads—class 53600. These new units are complete and direct replacements for the older class 14500 machines and are designed for closing light to heavy weight cotton, burlap and osnaburg bags and one- to three-ply paper bags. All units in the new class are single needle, high throw machines and incorporate numerous improvements and new features, according to the company. Rated speed has been increased 50% and an enclosed automatic lubrication system that is fed by two external reservoirs is now used, according to company officials. For particular production requirements, seven individual styles of machines are available in the new line. They include three units for mounting on auxiliary bag machines and four suspended head units with variations of counterweight or top lock balancer. Secure more complete details by checking No. 5451 on the coupon and mailing it.

No. 5450—Bag Sewer

A new product, called the model RC-100 bag sewer has been introduced by the Minneapolis Sewing Machine Co. Height adjustments to accommodate bags from 5 lb. to 100 lb. can be made. The height of the sewing head and conveyor height can also be regulated to conform with the operator's most comfortable sewing position. The model is equipped with a cast aluminum sewing head that sews paper, cotton or burlap. The standard model has a 6-ft. conveyor from center to center of pulleys. The machine is 5 ft. high and 3 ft. wide. To secure more complete details check No. 5450 on the coupon and drop it in the mail.

CONTEST FOR GROWERS

PORTLAND, ORE.—Northwest Canners and Freezers Assn. has established a state-wide contest for young growers of fruit and vegetable crops for processing, announces E. I. Pitkin, Eugene Fruit Growers Assn., farm youth committee chairman. Cash awards of $40, $25, $20 and $15 provided by the association will be awarded to the top four Oregon contestants of the processing section of the production and marketing contest, staged annually by the National Junior Vegetable Growers Assn.

To make your selling job MORE PROFITABLE!

…outstanding performance for your customers.

Good product performance means satisfied customers who keep coming back to you for their needs. And Phillips *66* Ammonium Nitrate delivers *outstanding* performance. It is guaranteed to contain 33.5% nitrogen, and is prilled to flow freely, handle easily. New multi-wall polyethylene bags (80 and 100 lb.) help to preserve free-flowing quality.

HERE ARE YOUR
EXTRA PHILLIPS *66* BENEFITS!

You'll benefit from the many extras you get from Phillips *66* service—in prompt deliveries and personal service from your Phillips *66* fertilizer field man.

You have the assurance of dealing in products backed by one of America's great names in chemical fertilizers when you sell Phillips *66* Ammonium Nitrate.

The Phillips team of agronomists, engineers and production men is constantly using its skills to maintain and improve the uniform high quality of Phillips fertilizers.

This high quality standard, plus prompt delivery and powerful advertising support will make your selling job more profitable this year—and in the years to come.

It's Performance That Counts!

PHILLIPS
CHEMICAL COMPANY
A Subsidiary of Phillips Petroleum Company
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A COMPANION HIGH NITROGEN FERTILIZER, NOW AVAILABLE IN 80 AND 100 LB. BAGS

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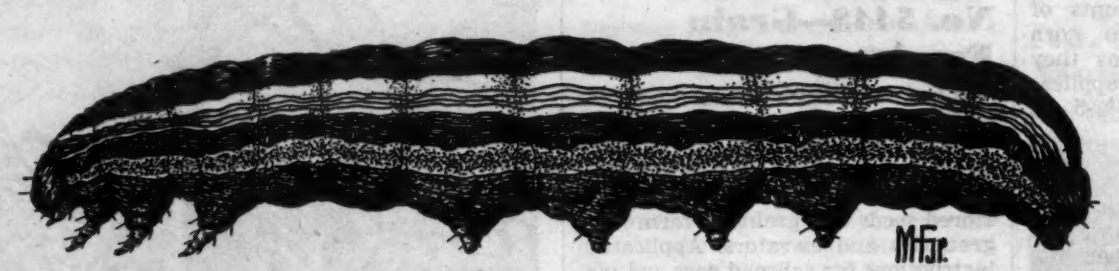
BARTLESVILLE, OKLA.—Adams Bldg.
CHICAGO, ILL.—7 South Dearborn St.
DENVER, COLO.—1375 Kearney Ave.
DES MOINES, IOWA—6th Floor, Hubbell Bldg.
HOUSTON, TEX.—1020 E. Holcombe Blvd.
INDIANAPOLIS, IND.—1112 N. Pennsylvania St.
KANSAS CITY, MO.—500 West 39th St.
MINNEAPOLIS, MINN.—212 Sixth St. South
NEW YORK, N. Y.—80 Broadway
OMAHA, NEB.—WOW Building
PASADENA, CALIF.—604 Citizens Bank Bldg.
RALEIGH, N. C.—804 St. Mary's Ave.
SALT LAKE CITY, UTAH—68 South Main
SPOKANE, WASH.—521 E. Sprague Ave.
ST. LOUIS, MO.—4251 Lindell Blvd.
TAMPA, FLA.—1214 South Dale Mabry
TULSA, OKLA.—1708 Utica Square
WICHITA, KAN.—501 KFH Building

BUG OF THE WEEK

Mr. Dealer—Cut out this page for your bulletin board



Yellow-Striped Armyworm

How to Identify

This bug, illustrated above, is distributed throughout the U.S. and Canada, as well as in other countries. Full grown, the armyworm measures about 1½ inches in length and is of a general greenish-brown color. The lengthwise stripes give the worm its name and also provide the most convenient distinguishing characteristic. Young worms feed at night and remain hidden by day, thus their presence may be unknown until considerable damage is done to a crop.

Damage Done by Armyworm

The armyworm attacks grass crops, particularly timothy, millet, small grains and corn when the plant is not fully grown. Under stress of hunger, it will also attack other plants. When armyworms in epidemic proportions enter fields, they destroy much of the vegetation over a wide area. Corn under 8 inches in height may lose all of its leaves, and larger stalks will have their centers eaten out. Damage to a field usually begins at its edges, since the worms often move in from other crops where the food supply has been exhausted. Their movement, being in tremendous hordes, resembles a military advance, which gives the pest its common name of "armyworm." Outbreaks of armyworm are frequently rather sudden and occur at no regular cycle.

Habits of Armyworm

This pest passes the winter in the partly-grown larval stage. The worms, not fully grown, find shelter in the soil around clumps of grass or under litter. Full growth is attained late in April (in the latitude of central Indiana) and they pupate just below the soil surface. With cool weather, they remain in the pupa stage for two weeks or longer, then turn into brownish-gray moths which are good fliers with a wingspread of about 1½ inches. However, these moths fly mostly at night, remaining hidden by day. Females lay eggs in rows or clusters on the lower leaves of grasses, and the young worms which hatch are pale green in color and rely on a looping type of crawl for locomotion. Upon becoming full grown, however, they reach their longest measurement of approximately 1½ inches. Entering the ground, these worms change to the pupal stage and emerge as moths in from two to three weeks. There are about three generations a year. The most extensive damage is done by the larvae of the first generation, which is in early or midsummer. The larvae of the last generation are many in number in the late summer.

Control Methods

Since armyworms advance in tremendous numbers over a wide "front," fast and widespread measures must be taken to control their movement. During heavy infestations of past years, emergencies have been declared and insecticides rushed to affected areas by plane and truck. Pesticidal materials may be applied by ground or air equipment and poison-bran may be scattered in their path. Because of the possibility of illegal residues remaining on crops at harvest time, it is best not to depend on recommendations of past seasons for armyworm control. Local county agents or state extension service people should be consulted for this type of specific information.

Drawing of Yellow-Striped Armyworm furnished Croplife through courtesy of the artist, Marvin Frost, Jr.

Previous "Bug of the Week" features are being reprinted in attractive 24-page booklet, priced at 25¢ single copies; reduced rates in quantities. Write Croplife Reprint Dept., Box 67, Minneapolis 1, Minn.

OVER THE COUNTER

(Continued from page 9)

fic farming, these services must in-ude:

"1. Thoroughly trained and quali-ed field men who are capable of aking proper recommendations with espect of specific chemicals, quanti-y, time and method of applications. With new, and oftentimes better, hemicals becoming available all of he time, field men must keep up-to-ate with this rapidly expanding in-ustry.

"They should have a thorough orking knowledge of the particular rea which they serve, so they can ork closely with the farmer on a ear-round basis, have a thorough nderstanding of his conditions and ndividual farm problems and take a ersonal interest in achieving maxi-um results at minimum cost, with ride in work well done. Above all, he field man must have the chemi-al know-how to do his job.

"2. Complete local stock of mate-ials on hand at all times, in order to e able to deliver specific materials hen required.

"3. Rapid and dependable delivery ervice, so as to deliver where needed or timely application—avoiding cost-y stand-by time.

"4. Adequate equipment for proper pplication or injection, when re-uired.

"5. A code of ethics dedicated to ssisting the customer in producing he greatest yield of the highest quali-y at the lowest cost possible.

"Service is the key to farm chemi-al management and unless these ervices are available from the chemi-al supplier, the farmer is very likely to lose because of the lack of them.

"For example, a single ill-advised nd unnecessary application of insec-ticide would cost the grower more han he could possibly save by 'shop-ping around' for materials all season.

"The days when the salesman made timely calls just to take the order are gone. Now, it is not a job of selling chemicals, but rather a job of selling chemical know-how.

"The salesman of today, or the field man as we prefer to call him, must have a comprehensive knowledge of a large variety of agricultural chemi-cals, including: fertilizers, both dry and liquid, soil amendments, insecti-cides, fumigants, defoliants, herbi-cides and specific weed and grass killers; however, his most important commodity is service and his objec-tive to his customers through to crop time at the least possible expense to them.

"With respect to his chemical man-agement, the farmer will do well to select a supplier whom he can trust with confidence and who will work with him at all times to the end that his operations will be truly success-ful."

New Entomology Review Makes Bow

BERKELEY, CAL.—The first issue of the "Annual Review of Ento-mology" has been published by An-nual Reviews, Inc., a non-profit or-ganization at Stanford, Cal.

The publication is designed to keep entomologists up to date on inter-national developments in their field by presenting reports on subjects of current interest written by special-ists in various branches of ento-mology, according to the editors.

Two University of California scien-tists edit the review. Edward A. Steinhaus, professor of insect path-ology, is editor. Ray F. Smith, asso-ciate professor of entomology, is as-sociate editor.

Laboratory DDT Studies Show Wireworm Control Persists Several Years

WALLA WALLA, WASH. — Soil treatments with DDT for control of wireworms have indicated that a 20 lb. an acre dosage of the material is a practical quantity to apply to the soil just before planting time, and that the effectiveness of the DDT persists for a long period.

According to two USDA research workers, M. C. Lane and C. E. Woodworth, of Walla Walla, the residual effect of DDT applied 10 years ago at 20 and 40 lb. rates, is still sufficently strong to kill newly-hatched wireworms and prevent reinfestations of the soil by this pest. The workers also report that their field results are borne out by samples of soil taken from fields treated by farmers from 1947 to 1950, and exposed to wireworms in laboratory tests.

Among the farm samples, two fields treated in 1947 with 10 lb. DDT had lost practically all ability to kill young wireworms. Of eight fields treated by farmers in 1949 and 1950 with the same amount of DDT, two had lost toxicity against wireworms but the other six remained highly toxic.

None of the 10 fields showed an infestation of wireworms serious enough to cause damage to sugar beets, beans, potatoes or corn planted in 1955, it was reported.

Research on control of wireworms at the Walla Walla laboratory in 1955 consisted mostly of continuation of studies on longevity of insecticides in the soil.

Experiments on residual effects of chemicals other than DDT have shown that aldrin at three and six pounds an acre, dieldrin at two and four pounds an acre, heptachlor at two and four pounds, isodrin at one and three pounds, and chlordane at four and eight pounds, gave nearly total kill of young wireworms exposed in the laboratory to samples of soil that had been treated 18 months previously.

The entomologists also noted the higher dosages of these insecticides showed a much better kill of mature wireworms. It was emphasized that these are merely results of laboratory tests and should not be construed as recommendations.

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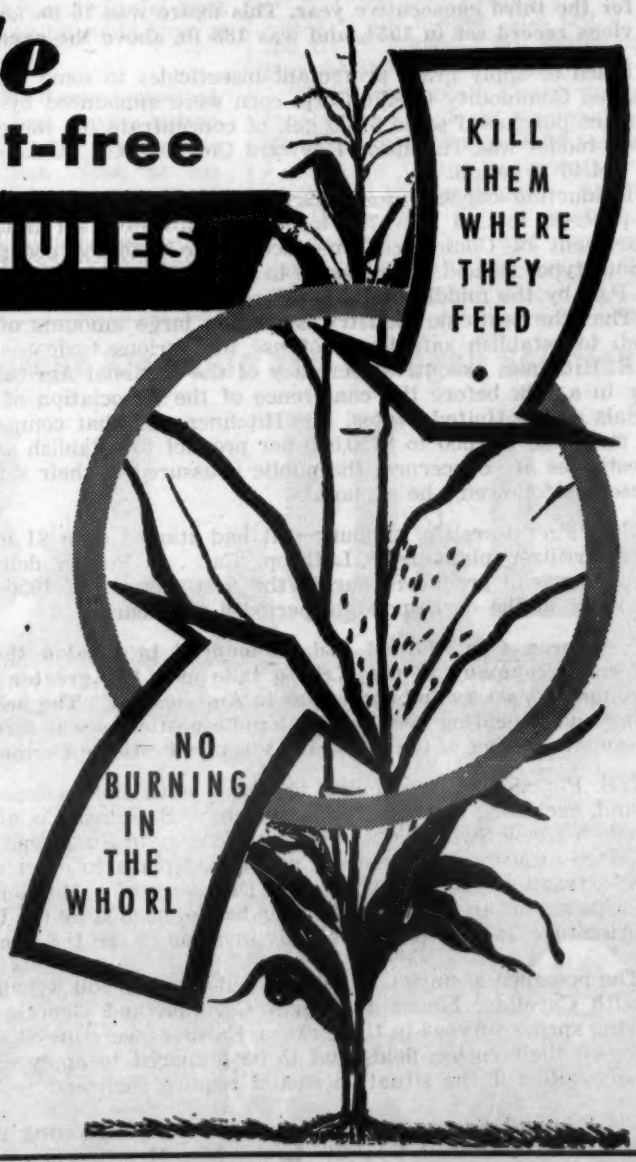

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What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

The farm bill passed by Congress was expected to act as a stimulus to fertilizer sales in the U.S., according to USDA interpretations. However, a controversial issue was seen in the question of whether or not USDA would permit commercial corn belt farmers to comply with the original acreage allotment of 43 million acres, or the higher 51 million acre allotment, in order to participate in the soil bank program as outlined in the bill.

The Maryland Governor's Safety-Health conference at Baltimore devoted an entire day to fertilizer safety. Speakers included Curtis A. Cox, Virginia-Carolina Chemical Corp., Richmond, Va., national chairman of the fertilizer section, and representatives of the National Plant Food Institute and the fertilizer manufacturing trade.

Albert L. Taylor was named to succeed Dr. Gotthold Steiner, as head of plant nematology research in the U.S. Department of Agriculture. Dr. Steiner recently retired after a career of 34 years in the department.

Emphasis was placed on the specificity of pesticides of the future, by speakers at the recent Western Agricultural Chemicals Assn. meeting at Los Angeles. Speakers described newly-developed insecticides, fungicides and weed killers.

The annual U.S. Department of Agriculture report on the pesticide situation for 1956, confirmed what has been voiced around the industry for some time: namely, that the supply situation for this year is ample. Further, however, the report predicted a good season ahead, based on information received about the presence of unusual numbers of over-wintered pests in different areas of the country.

The crop reporting board announced that the average yield of lint cotton in 1955 had been 417 lb. an acre, which set a new record for the third consecutive year. This figure was 76 lb. above the previous record set in 1954, and was 138 lb. above the average.

Plans to apply grain protectant insecticides to some ten million bushels of stored Commodity Credit Corp. corn were announced by USDA. The Department purchased some 3,600 gal. of concentrate for the purpose. Successful low bidder was Thompson-Hayward Chemical Co., Kansas City, Mo. Price was $24.46 a gallon.

Production capacity for phosphoric acid from both phosphorus and by wet process, totaled 1,764,737 tons P_2O_5 equivalent on January 1, the U.S. Department of Commerce announced. The reported scheduled expansions for both types of acid are expected to raise capacity to more than two million tons P_2O_5 by the middle of 1957, the report said.

That the pesticide industry is putting large amounts of money into research to establish safe levels of use for various toxicants, was stated by Lea S. Hitchner, executive secretary of the National Agricultural Chemicals Assn. in a talk before the conference of the Association of Food and Drug Officials of the United States. Mr. Hitchner said that company expenditures may run from $50,000 to $750,000 per product to establish safe use. "Insofar as pesticides are concerned, the public is assured of their safety if directions for use are followed," he declared.

Best Fertilizers Co. announced it had started on a $1 million expansion of its fertilizer plant near Lathrop, Cal. . . . Potash deliveries by seven major American producers during the first quarter of 1956 were 3% lower than those in the corresponding period a year earlier.

Borax Consolidated Ltd. announced in London that it would form a company in the U.S. to take over the greater part of the company's assets and operations in America. . . . The need for training and educating dealers who handle pesticides was stressed at the annual meeting of the Carolinas-Virginia Pesticide Formulators Assn.

U.S. Potash Co. is planning to merge with Borax Consolidated Ltd. of England, according to an announcement by U.S. Potash Co. officials . . . Work started on a new Swift & Co. plant food factory in St. Joseph, Mo.

Congo growers of pyrethrum announced plans to erect a $500,000 pyrethrum-extraction plant in Africa . . . Discovery of a Mediterranean fruit fly in Florida set off an all-out eradication battle, headed by the U.S. Department of Agriculture. It was the first Medfly invasion of the U.S. since 1929.

The presence of unusually large populations of boll weevils were reported in South Carolina, Louisiana, North Carolina and Georgia by the USDA, following spring surveys in these areas. Farmers were urged to keep a watchful eye on their cotton fields and to be prepared to apply control materials on short notice if the situation should require such action.

Edmund Greene was named director of marketing research for Monsanto Chemical Co., St. Louis, Mo. Mr. Greene was formerly assistant director of the company's advertising department. He succeeded Shea Smith III, who became assistant to the president of Monsanto.

Infestations of alfalfa-destroying insect pests were reported from various parts of the country. The spotted alfalfa aphid was listed by Kansas as its No. 1 pest, while alfalfa weevils were reported as active in Maryland. Late in April the House agriculture committee was studying the factors involved in granting financial aid to farmers to help them to control spotted alfalfa aphids. USDA witnesses indicated that the best defense is to develop insect-resistant crops.

A proxy contest at Virginia-Carolina Chemical Corp. loomed as Rupert T. Zickl, and associates from New York, sought to gain a majority on the V-C board. Joseph A. Howell, president of the corporation, in an open letter to Mr. Zickl asked for further information about the latter's intents and purposes.

FARM SERVICE DATA

Extension Station Reports

California crops are showing significant response to phosphate and nitrogen fertilizers in many areas, according to the California Fertilizer Assn., which cites recent findings of research technicians of the University of California.

The association points out that most vegetable crops are heavy feeders, removing large amounts of all the plant nutrients from the soil, especially the three major ones—nitrogen, phosphate and potash. In some areas which have been the scene of consistent crop production over a period of years, nitrogen and phosphate applied together have produced material increases in production of vegetable crops.

Dr. D. S. Mikkelsen of the university's department of agronomy, Davis, has found that in some cotton producing areas, the continuation of nitrogen and phosphorus has increased cotton yields by as much as 100% over the production from similar unfertilized plots.

Rice has responded consistently to the application of nitrogen and phosphate together, drilled 4 inches into the soil before planting and flooding. Dr. Mikkelsen was in charge of these experiments.

The Orange County Agricultural Extension Service of the University of California, in its annual report for 1955, states that some soils in that area like phosphate fertilizer, and says "fifty pounds of actual phosphate (P_2O_5) per acre trebled barley yield in test plots. Greatest response comes where the material is placed with seed at the time of planting.

"Coarse textured soils, such as sands and sandy loams, give best response with one and a half or two parts of phosphate to one of nitrogen. Finer textures like loams, clay loams, and clays do best when the phosphate to nitrogen ratio is upped 5 to 1."

★

Chinese pheasant damage to new stands of corn has been successfully prevented by treating the seed corn with lindane, according to the Oregon State College Extension Service.

Pheasants will pull young corn in order to get at the seed piece that is at the base of the plant. This results in poor stands and lowered production. Treating the seed corn with 2½ ounces of 14% lindane to 100 lb. has been satisfactory. If the lindane material is 25% strength, only half as much or 1¼ ounces per hundred pounds of seed will be needed.

★

Ranchers can slice winter cattle feeding costs by raising and feeding their own ranch-grown supplement. This supplement actually is a highly nutritious forage dubbed "super hay."

The hay was first grown several years ago in Gunnison County, Col., in a research program conducted by the Colorado A and M Experiment Station, the Agricultural Research Service of the U.S. Department of Agriculture and Gunnison County groups. Possibilities offered by super hay have created interest throughout the West and in cattle raising sections of several foreign countries.

Researchers have reported results of feeding the hay to wintering beef heifers. "Pound for pound of crude protein," they say, "super hay is as effective a supplement as 41% oil meal cake." Super hay can be grown for about 60 to 70% the cost of commercial feeding supplements, researchers say.

Researchers have been feeding each beef calf 1.18 lb. of super hay per day along with ordinary hay. This is equal to feeding one-half pound of 41% protein cottonseed cake. They reported that calves fed super hay "are making about the same gain and look about as good as the calves getting commercial supplement."

The super hay was grown last summer on the Ed Blackstock ranch near Gunnison by applying 500 lb. per acre of actual nitrogen fertilizer.

"This may seem like a lot of fertilizer," said one researcher, "but we're not growing ordinary hay; we're growing supplement." They harvested five tons of super hay per acre, compared with 1⅓ tons of ordinary hay grown nearby.

Encouraged by results with super hay, the scientists plan to do further research aimed at increasing the efficiency of growing Colorado's mountain meadow hays.

★

The Nevada State Farm Safety Committee, meeting in Reno recently chose tractor safety and the safe use and storage of insecticides as areas of emphasis during the next three months. Committee members were told by Robert Lauderdale, extension entomologist at the Max C. Fleischmann College of Agriculture, University of Nevada, that use of chemical pesticides is increasing in Nevada, and people need to be told of the dangers possible from their improper or careless use.

★

Sorghums must have nitrogen fertilizer for increased yields for two reasons, points out Lyman Amburgey, extension soils specialist at the University of Arizona. Arizona soils are naturally low in this vital plant food, and the increased practice of double cropping a field in a single year puts a further drain on any available nitrogen in the soil, he says.

★

The Agricultural Extension Service of New Mexico A&M College is stressing insecticides in its new "Cotton Insect Control Guide for 1956."

John J. Durkin, extension entomologist who prepared the guide, reminds cotton farmers that a good insect control program will give them greater production, higher-quality cotton and increase profits.

"Chemicals," Mr. Durkin says, "are the only practical and effective means of reducing insect infestations on cotton. For good control, apply the proper amount of the correct insecticide in the right manner and at the right time."

★

Chemical control of weeds and grasses in caneberries has worked well in two-year trials at the southwestern Washington Experiment Station, Vancouver, Wash.

Various rates of Karmex DW, CL-IPC, DN General and IPC and combinations were included in experiments with raspberry plots. All rates of each material used controlled annual weeds and grasses without yield damage, Dr. F. M. Bullock, station superintendent, reports.

Doing Business With

Oscar & Pat

After church service one Sunday Oscar stood outside waiting for Minnie, and he was a little irritated with her. She liked to stop and visit with all the people she knew, which Oscar did not. Always, he thought, they would try to get something from you, like act on some church committee, which was lots of work and no pay, or they invited you over for a meal, and then expected you to invite them back and feed them better than they fed you. Best for a man to run his own life, then he could do as he wished, and cut the corners when he felt like it.

"Oh, Oscar," begged Minnie, as she came hurrying up through the crowd, "could we take Mrs. Draeger home? She's that widow down on Highway C, you know. The Bjornson's took her to church but they are going to Coleman for dinner with their relatives."

"Huh, I should say not," declared Oscar with a snort. "There are at least ten families she knows that live out Highway C. She can ask them. That would be a 12 mile trip for us. Gasoline is too high priced these days. Ach, what people want you to do."

"Please, Oscar," begged Minnie once more.

"Nein," Oscar said firmly. "Do you want to spoil my whole Sunday, woman?"

Minnie sighed and wended her way back through the throng. Shortly, she came back, looking very sad. "The Grimms will take her," she said. Then as they got into the 1947 model Chevy, Minnie said wearily, "Oscar, do we have to keep saving so much all the time? We have enough for a couple of rainy days, now."

"We are sensible, you and me," Oscar said stolidly. "I am, anyway. That I know. You never can tell what will happen in the future. Remember, money is always in style, Minnie. If you haven't got it, nobody else will pay your bills."

"I suppose you are right," his obedient spouse sighed. "You always are. But sometimes, I wish—"

She didn't finish, but lapsed into silence. Now they chugged along in silence. Oscar's neighbors sped by him in new cars, sleek and good looking, some honking good naturedly as they saw him.

"Huh," commented Oscar, "not a one of them paid for I'll bet. But ours is, Minnie—and a long time ago. Let them show off if they want to. But we have the cash in the bank."

"Oh," exclaimed Minnie as they neared their house, "there's a car there. Why—why it must be Rheinhold and Wilhelmina!"

Oscar frowned. "They come at a funny time," he said, "right at dinner."

"Oh, I have plenty of sauerbraten and dumplings for all of us," Minnie said. "It will be so nice to have our old friends, the Webers, again. I was gettin' sort of lonesome for company."

"Well, I wasn't," Oscar said. "I wanted to rest this afternoon. I had a terrible week with that Pat again, spending so much money for sales promotion in our store, when we are already getting so much fertilizer business we can't handle it. And that Weber, he is all right sometimes, but he smokes that terrible pipe all the time."

Rheinhold Weber was ten years older than Oscar and fatter and he laughed more. But it was doubtful who was tighter. Rheinhold who worked as a clerk in the water department at the county seat, did not exactly throw his money away. Some of his enemies said that back in the days when it was legal to use gold coin, he would file off a little from each coin and save the dust. It was rumored that he had eight old cold cream jars filled with the dust and was wondering how to cash it in.

"Hello, Oscar," greeted Rheinhold, his teeth clenching the inevitable briar, "bought any more savings bonds since we was out here last?"

"Oh, a couple," Oscar conceded, noting with some appreciation that Wilhelmina Weber had a lunch basket with her.

"Ach, it sure is hard to save as much as one used to," Rheinhold said, "but I got a new racket that helps a little."

"What's that?" Oscar asked as men and women moved to the back door of the house, to save the living room carpet.

"Oh, I trade stuff with the pawn shop feller," Rheinhold said. "Lots of fellows at the city hall throw away old neckties. I ask them for them—I say I have a project—ach, they should know the project. Then Wilhelmina cleans them and I trade them with Sol, the pawn shop man, for uncalled for suitcases and things like that. Then I sell those things to the relatives."

"I got all the suit cases I want, Rheinhold," put in Oscar quickly. "We don't go traveling much, anyway. It's too expensive."

They went into the house. The women, chatting furiously as women will do, hurried with the dinner. Wilhelmina had turkey sandwiches and cake which she put on the table. The men sat around waiting for the meal to be served.

"Of course," Rheinhold said happily, reverting to the only subject that gave Oscar and him joy, namely saving money, "I have saved much all these years on my beer, ach, so much."

"How's that?" Oscar said absently. He was thinking how could he stand Rheinhold all afternoon. Somehow he didn't like to hear someone else brag about cutting corners. Only he, Oscar, had sense enough in that direction.

"Oh, you know," Rheinhold said a little petulantly, "at noon I always walk three blocks to the Kleinholz Brewery in our town. The brewmaster he never advertises much, but he lets everyone from the village come up during noon for a couple beers—free. I can always sneak in about three beers before it is time to go back. Three beers, they are worth at least 30 cents all told."

Rheinhold's brown eyes glittered mischievously, as he waited for the economics of the situation to sink in. Oscar merely grunted.

"I have been going to the brewery for 16 years every working day, Oscar, and ach, isn't that some savings?"

"Depends on how you look at it," Oscar returned.

"Then we save another way," Rheinhold said, as they sat at the table. He turned to Minnie. "How much do you pay for eggs out here?"

Minnie's lips tightened as she mentally figured, typical gesture. "Oh, I think I paid 54¢ the last dozen I bought."

"Aha, there is where we beat you again," laughed Rheinhold. "I know a farmer who sells me all his cracked eggs for 41¢ a dozen. They are just as good as the rest, ach, but the Grade A customers won't take them. If Wilhelmina can't use all the cracked eggs, we sell them to neighbors for 46¢."

Wilhelmina smiled admiringly at her husband.

"My, you people certainly are watchin' the pennies," Minnie said admiringly. "Aren't they, Oscar?"

Oscar merely grunted and pecked at the sauerbraten with his fork.

"Ach, you can see I watch the money, Oscar," said Rheinhold. "I would be a good man in business, don't you think? Ja, I am getting tired of that water department. I can retire in two years if I want and take a pension. Would you have a place for me in that—that farm supply business? By golly, between the two of us we would cure that Irishman Pat of spending so much money. We would stick it in the bank or lock it up before he could look at it."

"What's that?" Oscar looked at Rheinhold. He had never before thought of having the man in his business with him. Now, as his mind swiftly envisioned what would happen with two saving men in the office, somebody to beat him at the process now and then, he was horrified. Life with Pat was bad enough, but life with Rheinhold around would be even worse.

"Rheinhold! Rheinhold!" he said with sudden gusto, "to get into the fertilizer business with someone like Pat, that I would not wish onto anyone. Stay where you are another five years. Business, ach, that is dog eat dog. And you lay awake nights worrying if enough money comes in so you can get paid. Then that banker is always yelling about paying back loans, and farmers kick because fertilizer doesn't yield five times as much as they hoped it would. Ach, what a business."

"Oh," said Rheinhold soberly, looking at his wife. "You—you sometimes have to wait for your pay? That I would not like, would we, Wilhelmina?" His wife shook her head vehemently.

"And ulcers!" Oscar said. "You get them and they hurt terribly. Then lots of times you get headaches, and high blood pressure, and you get nervous and shout at your wife."

"Does—does Oscar shout at you?" asked Wilhelmina.

Minnie, her woman's intuition feeling that Oscar was saying all this to discourage Rheinhold, nodded.

"You are very lucky, Rheinhold," said Oscar reaching over and patting his friend's chunky arm. "Stay right where you are, and ach, buy lots of those savings bonds."

Rheinhold shook his head sadly. "I did not know it was that bad, Oscar. As a friend, ach, I feel sorry for you. But you are honest. You tell a man the truth. Maybe I am better off to stay at the water department."

"That you are," Oscar said, his face beaming. "Now Rheinhold, you sit right there for a while yet while I go down in the basement by the fruit cellar and get a bottle of dandelion wine I have been saving for five years. You and me, we are going to have a drink—for old time's sake."

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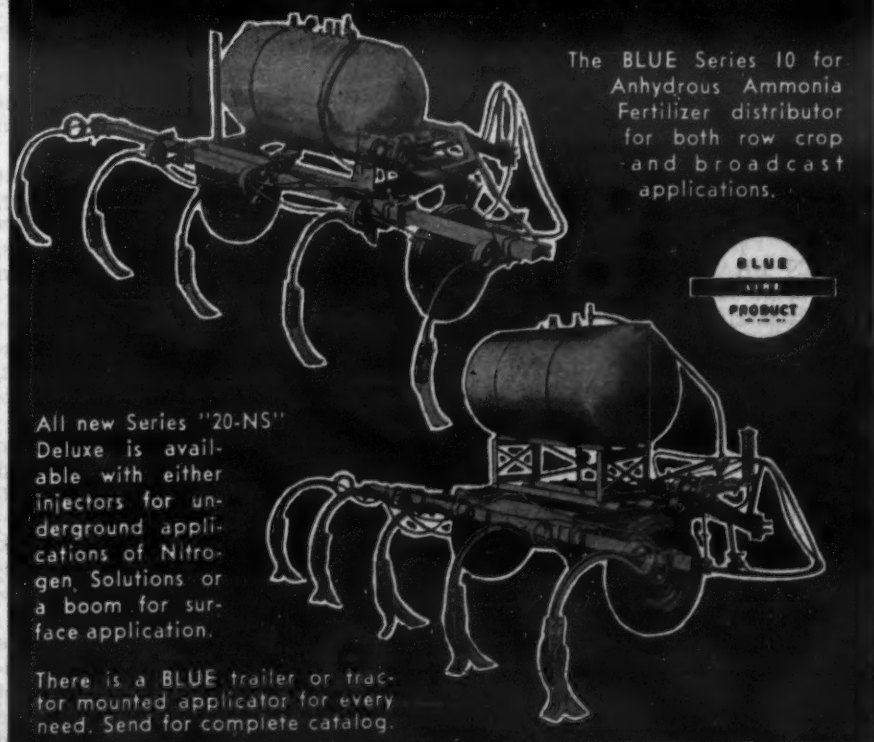

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TRADE WINDS

News That Charts Selling Opportunities for Dealers

Nitrogen Boosts Both Quality, Yield of Wheats, Tests Show

CORVALLIS, ORE.—Results of last year's tests in the Columbia Basin wheat growing area underscore conclusions reached in 1953-54 experiments—nitrogen fertilizers can improve both yield and quality of the soft white wheats grown in that area.

In last year's experiments, yields and protein levels of wheat from different levels of nitrogen fertilization were checked on each of 47 farms in the area, according to A. S. Hunter, Oregon State College-U.S. Department of Agriculture soil scientist in charge of the project.

Protein content is considered important because millers and bakers prefer soft white wheats with a protein level from 8 to 10% and it has been found that the amount of nitrogen fertilizer added to the soil can affect the protein content of the wheat.

When no nitrogen was used on test plots on the 47 farms, 25 of the farms produced wheat containing less than 8% protein—lower than millers and bakers prefer. This was true in spite of the fact that 1954-55 was drier than normal, the kind of year when protein levels usually are higher.

When nitrogen was added, both yields and protein content rose in most cases. But on 85% of the farms tested, the rate of nitrogen that produced the highest yield produced wheat containing more than 8 but less than 10% protein.

This means that in many cases, farmers gain a double benefit from the use of nitrogen—having both the yield and quality of their wheat improved.

On only 15% of the farms did the rate of nitrogen that produced highest yields produce wheat containing more than 10% protein. And in most of these cases, the protein content was only a little higher than desirable and would probably have been acceptable to millers.

On four of these farms, the protein level of the wheat was already too high before any nitrogen was added.

Agriculturists hope this information can be used, along with soil tests, to make individual fertilizer recommendations available to each farmer in the area. This would help farmers grow high quality wheat at the lowest possible cost per bushel.

However, several more years of research are needed before these specific recommendations can be made.

Research is being carried on by the OSC agricultural experiment station and the U.S. Department of Agriculture. Work is done in cooperation with the experiment stations at Pendleton and Moro, and county extension agents in the Columbia Basin wheat growing area. Protein content is determined by the OSC soil testing laboratory.

Advantages of Soil Conditioning Stressed In California Report

SAN FRANCISCO — Only 12 per cent of the land in California is arable largely because of poor soil structure, and this condition affects adversely in particular the cereal industry.

A report completed recently by the Chemical Industries Section of the San Francisco Chamber of Commerce, stated a good portion of unusable land in the state could be turned into profitable crop production with the use of soil conditioners. Such conditioners would be especially valuable in valley basin land where basin soils are incorrectly drained, the report said.

Cereals and related grain products are the major crops in this area. The report states that the types of soil on which these crops are grown "will respond favorably to treatment of poly-electrolytic conditioners."

The total land area in the state is 100 million acres, and only 12 million acres are being harvested.

28 New Applicators Licensed in Oregon

PORTLAND, ORE.—Twenty eight new weed applicators licenses were granted in Oregon during the first quarter of this year, according to the Oregon Department of Agriculture. Of this unusually large number of new licenses, 15 were granted to applicators who spray on ground level, while 13 received their first license to apply weed sprays by air. License renewals went to 54 ground applicators and 51 air applicators.

Air and ground weed spray applicators in the state total 250. Their licenses expire annually on the previous year's issuing date. The greatest number of license renewals are in April, May and June, because of wheat and early vegetable spraying.

Nut Growers Plan Increased Production

PORTLAND, ORE.—Nut Growers Society of Oregon and Washington has embarked on a campaign to encourage increased walnut and filbert production on existing acreage, according to information released by H. B. Sallee, Vancouver, Wash., president, following a meeting of growers, packers and state college extension service personnel at Newberg.

Mr. Sallee appointed several committees to study ways and means of rapidly getting the nut production push underway.

Lloyd C. Baron, Northwest Nut Growers Assn. field man, Newberg, was named chairman of the one-ton club committee while Bill Hays, Newberg, will head the production committee and Earl Smith Jr., Newberg, will chairman the filbert propagation and pollenization group. Another Newberg man, Ben Forbes, was named chairman of the harvesting equipment committee.

Speakers explained during the planning session that filbert and walnut growing is now a $20,000,000 Northwest industry and that the demand for nuts is holding firm while prices are gradually improving despite the general downward trend for most other farm commodities.

It was also pointed out that some nut producers are only half-heartedly farming their nut groves and not availing themselves of the income potential they have in their orchard investment. Mr. Sallee explained that it is hoped the One-Ton club idea will create immediate interest and result in a larger acreage return for the area's nut growers.

Statistics Released on California Pesticide, Fertilizer Companies

SAN FRANCISCO — A total of 28 firms producing insecticides and fungicides were operating in California last summer, according to a report prepared for Croplife by the Division of Research and Statistics of the State Department of Employment.

The factories employed an estimated total of 1,000 wage and salary workers through the period from July 1 to Sept. 30, and the employees earned a total of $1,197,804, or an average of about $400 per month per worker, and about 36 workers per plant.

There are as yet no comparable figures to indicate trends in these industries, but the Division of Research and Statistics is preparing a new series of quarterly reports starting with the first quarter of 1956 which Croplife can use to show trends in the state.

The number of firms manufacturing commercial agricultural fertilizers in California has increased from 77 to 83 within the past five years, according to a report of the Division of Research and Statistics.

Average annual employment in these firms, despite the increase, has remained about the same over the half decade since 1951—approximately 1,300—and the slight seasonal fluctuations have been about the same. The annual profile has been to start the year at the annual low point, rising to a slight peak in May or June, and then gradually dropping throughout the last half of the year.

FERTILIZING TREES

SEATTLE — University of Washington scientists report that feeding nitrogen to Douglas fir trees results in an increase of 65% in timber volume over unfertilized trees.

Regional Fertiliz Conference Plann For Yakima, Was

YAKIMA, WASH.—The se annual regional fertilizer confe sponsored jointly by the state cultural institutions of Idaho, O and Washington, and the Soi provement Committee of the F Northwest Plant Food Assn., w held June 28-30 at the Chinook here.

The program the morning of 28 will include technical discus on soil testing and tissue ana Luncheon speaker June 28 will b I. E. Miles, agronomist, Olin Ma son Chemical Corp., Jackson, who will discuss "What Makes Testing Click in the South?"

A series of talks are schedule the afternoon of June 28 and morning of June 29 dealing with tilizer responses and soil testin the Pacific Northwest.

The June 29 afternoon program emphasize fertilizer distribution application machinery. It will prelude to the following day's at tion, when fertilizer equipment be exhibited and displayed in op tion in a field near Yakima.

NAMED TO PEST BOARD

SACRAMENTO — Governor G win J. Knight has appointed John Fobes of Los Angeles as a membe the Structural Pest Control Bo succeeding Clifford Hodel of Los geles, term expired. Mr. Fobes, a p ner in the firm of Fobes and G structural pest control operator a charter member of the Pest Con Operators of California, Inc. He serve a term on the board expi January 15, 1960.

Movie Shows How Cotton Growers Can Boost Net Profit by Proper Fertilizatio

SAN MARINO, CAL. — California and Arizona cotton growers can often materially increase their net profit by applying recommended amounts of the proper fertilizer, says the California Fertilizer Assn. This is true if inadequate or improper fertilizer practices have been employed in the past and will often apply in these circumstances on the smaller operations allowed under the current acreage allotment program, the association said.

More adequate fertilization, combined with other approved farming practices will materially increase the cotton production of each acre, thus cutting down on the cost of production per bale, and put more net profit in the grower's pocket, says the association.

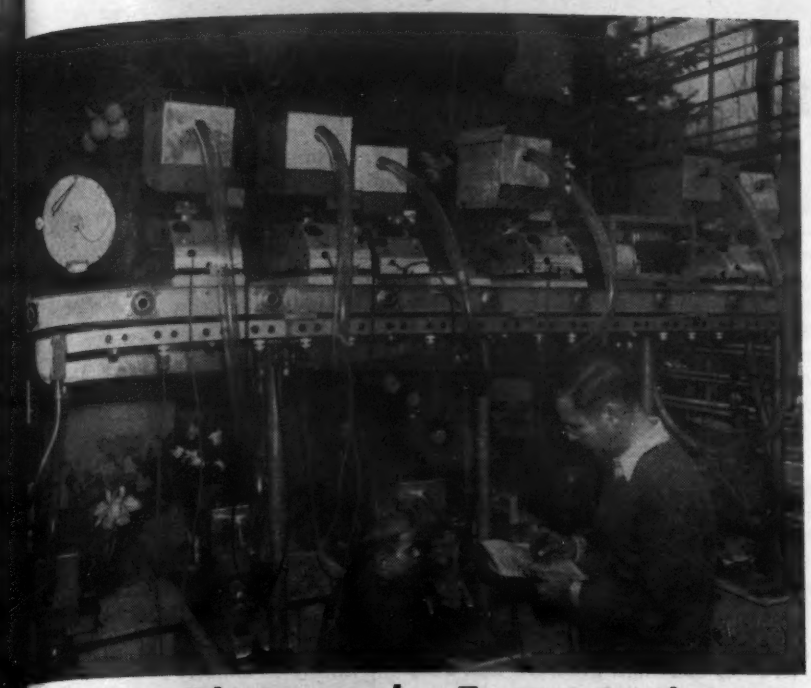
Recently a motion picture was produced by the CFA, in which the National Plant Food Institute coo ated, entitled "California Grows Fertilizer." It shows the origin various fertilizer elements and they are mixed to make plant fo methods of application, etc.

The accompanying table is pr sented which shows how the p profit of one California cott farmer was increased more th 100% by the application of fer lizer.

The 16 m.m. film in color, wh runs for 22 minutes, and genera covers California agriculture, available for free showing to gro of farmers, students, etc., upon ap cation to the University of Californ Berkeley or Los Angeles, Californ California State Polytechnic Colle San Luis Obispo; or California Fe lizer Assn., 475 Huntington Drive, S Marino 9, Cal.

COSTS AND PROFITS PER ACRE OF COTTON

Unfertilized		Fertili
	Fixed Costs	
$ 12.75	Preparation of land	$ 12.
11.86	Seed, Planting and Chopping	11.
20.03	Cultivating and Dusting	20.
25.59	Irrigation	25.
21.52	Taxes and other costs	21.
$ 91.75	TOTAL FIXED COSTS	$ 91
	Costs that Varied	
0.00	Fertilizer (Applied)	27.
26.77	Machine Harvesting Cost	49.
19.05	Ginning and Hauling	34.
$ 45.82	TOTAL VARIABLE COSTS	$111.
$137.57	TOTAL COST	$202.
724 lb.	Yield—Lint Cotton	1327
$210.05	Value Lint Cotton @ .29/lb.	$384.
32.20	Value Seed @ $50/ton	59.
$242.25	TOTAL VALUE CROP PER ACRE	$443.
$104.68	PROFIT PER ACRE	$241.



...me Lapse Photography Expert to Appear ...n National Plant Food Institute Program

...ASHINGTON—One of the fea...es of the annual convention of the ...tional Plant Food Institute to be ...d at the Greenbrier, White Sulphur ...rings, W.Va., June 10-13, will be ... presentations by John Ott fea...ing time-lapse photographic stories ... "Watching Flowers Grow" and ...eing Plants Feed."

The presentation of "Watching ...owers Grow" will be presented ...r the ladies attending the con...ention June 11 and the presenta...n on "Seeing Plants Feed" will ...e seen June 12.

Mr. Ott is shown above with his ...ght-year-old son, Henry, who will be ...en in the film presentations.

Several of the scenes in the Insti...te's feature film, "Making the Most ... a Miracle" were produced by Mr. ...tt.

Mr. Ott's specialty of time-lapse ...otography developed as his prin...pal hobby in 1927 while attending ...chool in Winnetka, Ill., where he still ...es.

By 1948 the demand on his time for ...ctures and showings of his pictures ... all types of audiences across the ...untry, together with the increasing ...essure from industry to make spe...al time-lapse films for public rela...ons, advertising, and research, ...ompted Mr. Ott to resign as an offi...al of the First National Bank of ...hicago and devote his full time to ...s hobby.

Mr. Ott first showed his films on television in the early part of 1949, soon after the first station started in Chicago.

Since then, he has supplied films or taken part in various TV programs in addition to doing his own television show regularly "How Does Your Garden Grow," which is now in its sixth year. The Radio Corporation of America used Mr. Ott's time-lapse pictures to demonstrate color TV to the FCC when approval was won for the RCA system, and his garden program was the first to originate in color from Chicago.

Walt Disney uses many of John Ott's pictures in such award winning films as "Nature's Half Acre," and will feature Mr. Ott and his special time-lapse equipment on the Disneyland program Sept. 26. This will explain how 20 time-lapse cameras were kept continuously working day and night for three years to produce approximately 15 minutes of film for the new Disney feature "Secrets of Life."

...gricultural Society ...o Observe Centennial

BELLVILLE, TEXAS—The Cat ...pring Agricultural Society, oldest ...ntinuously operating agricultural ...ciety west of the Mississippi River, ...ill celebrate its centennial June 8-...).

Forty members signed the original ...arter for the organization on June ... 1856. All residents of the Cat ...pring Community, they were de...endants of—and some of them were ...emselves—founders of the settle...ent which dates back to 1832, a part ... Austin's original colony.

Aim of the then new society was ...utual aid for studying agricultural ...oblems. Not only did its members ...udy all available printed material, ...t also they conducted experiments ... their own, among them such things ... green manure crops and water con...ervation. They built their first tank ...r water conservation in 1870.

Present-day members of the society ...ill are among the first to demon...trate new crops or farming prac...ices. The celebration will begin with ... parade at 10 a.m. June 8 and end ...ith a dance June 10. Two big bar...ecues at noon on the 8th and 10th, ...ill help fill the interim, along with ...ther observances.

American Potash Opens Fire-Fighting Course

WHITTIER, CAL.—A course in emergency fire fighting has been instituted by the research laboratories of American Potash & Chemical Corp. here as part of the firm's industrial safety program.

Purpose of the course was to acquaint research employees with methods of fighting fires and proper handling of auxiliary equipment such as gas masks, until the arrival of professional crews.

The company's safety studies have been moving ahead rapidly for the past six years at its facilities in Los Angeles, Whittier and Trona, Cal.; Henderson, Nev.; and at its subsidiary, American Lithium Chemicals, Inc., San Antonio, Texas.

As a result of this program, the company was awarded the Lammot du Pont safety plaque, presented annually to the company showing the greatest improvement in plant safety over a five-year period.

Coke Oven Ammonium Sulfate Output Gains

WASHINGTON—Production of coke oven ammonium sulfate during March totaled 167,737,192 lb., a 6.1% gain from output of 158,135,855 lb. in February, according to the U.S. Bureau of Mines. Production in March a year ago was 166,258,291 lb.

Sales of coke oven ammonium sulfate during March totaled 210,046,875 lb., down 4.4% from 219,605,013 lb. in February and also below sales of 238,052,706 lb. in March, 1955. Stocks on hand at the end of March totaled 304,872,486 lb., down 12.8% from 349,742,508 lb. at the end of February, but considerably higher than 231,432,275 lb. at the end of March, 1955.

Best Cotton Crop In Several Years Predicted in Mid-South

MEMPHIS—Cotton is up to good stands in the Mid-South bringing predictions of one of the best crops in several years.

Extension officials in Arkansas, Mississippi, Missouri and Tennessee also said in their weekly crop surveys that chopping is widespread and most fields are fairly clean.

In the four-state area farm officials said that except in a few scattered areas, replanting has been completed. They pointed out that chopping is being slowed in some areas by a shortage of workers.

Thrips and grasshoppers are on the move and are doing some damage to the crops, but the areas of infestation are not large at present.

Practically all West Tennessee's new cotton crop has been planted and chopping has replaced planting in most areas, Judd Brooks, district farm agent, said.

Mr. Brooks said the recent cool weather could not be considered favorable for cotton but no major damage has resulted. Early corn is up and growing steadily, while planting continues in some areas because of adverse weather conditions.

Arkansas farmers got a big start last week with most fields dried out for easy working. However, in some areas cotton was needing rain badly.

The Agricultural Extension Service in Little Rock noted that ample moisture in most areas was providing good growing conditions for feed and hay crops. Small grain crops were maturing rapidly. Phillips County reported one of the best wheat crops ever produced there is in prospect this year.

Most of the rice crop was up to a stand, and many fields have been flooded for the growing period. Some minor planting of cotton was continuing, but generally the crop was up and chopping was well under way, particularly in southern counties.

Cotton stands are generally good throughout Mississippi, and prospects for a high yielding crop are the best in several years, the Mississippi Agricultural Extension Service said.

T. M. Waller, extension cotton production specialist, reported farmers now are side dressing, cross plowing and chopping out the crop. Rain is needed in some areas, he added. Most fields are fairly clean.

Thrips are moving rapidly into young cotton from drying up legume areas, according to A. G. Bennett, extension entomologist, who advises farmers to poison young cotton for control as needed.

The migrant labor shortage facing farmers throughout the Mid-South is not threatening to Southeast Missouri farmers, according to the Extension Service.

"If we have a lot of rain we will need more workers, but the situation is under control now," W. F. James, Pemiscot County agent, said.

He explained that one reason why the labor shortage isn't a problem is that many farmers are cross-plowing and are thereby eliminating much of the cotton chopping.

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Molybdenum Traces May Add More Profit for Fertilizer Trade, Scientist Declares

Editor's Note

The increasing knowledge on the subject of trace, or minor elements in fertilizers is opening doors to new areas of sales for the plant food industry. Among the more important of these trace materials, is molybdenum, the lack of which is a limiting factor against full production in some soils.

Here an expert describes some of the significant facts about molybdenum to bring our readers—both manufacturers and dealers of fertilizers—up to date on recent developments.

The author is George S. Cripps, manager of agricultural chemical development for the Climax Molybdenum Company, New York.

Treatment of soils with molybdenum — an agricultural development widely reported on the research level over the past two years — is likely to be an increasing factor in the manufacture and sale of commercial fertilizers in coming seasons.

Some thirty-five areas in the United States have now been established as deficient in this trace element, and new areas are being located. Application of molybdenum chemicals to a number of commercial crops is standard practice and some fertilizer manufacturers are now offering mixes incorporating molybdenum.

Currently, the commercial stature of molybdenum is in its infancy. But the record of progress on both the research and practical level in the short time molybdenum-starved soils have been recognized, indicates that this may be an area of potential profit for fertilizer manufacturers.

Farmers seeking greater yields from croplands are expected to increase the demand for molybdenum-containing fertilizers as soils deficient in this element are discovered in new areas. A new market for fertilizers and other agricultural chemicals is represented by marginal lands which heretofore have not been considered economically feasible for cultivation. Where a lack of molybednum is responsible, these lands may be improved with agricultural chemicals and brought into the fertilizer sales picture at relatively little cost.

One of the interesting aspects of molybdenum's use in agriculture, is the very small amounts required by plants. Clover, for example, shows response when its molybdenum content drops below 0.3 parts per million, and normal lemon leaves are reported as containing 0.024 p.p.m. in contrast with 0.01 p.p.m. for deficient leaves. Application of small amounts gives good results in the field, as little as 2 oz. of a molybdenum chemical an acre bringing about marked improvement in clover on some soils.

This small requirement is in part responsible for molybdenum's being proved essential to plant life only as recently as 1939. At that time, preliminary tests indicated that there was little likelihood of field deficiencies in the U.S.

Results being obtained by Australian workers who obtained the first field responses of practical significance, however, changed that concept in the early 1940's. They found that hundreds of thousands of acres previously considered too poor to be limed or fertilized needed only a few ounces of molybdenum an acre to become profitable range land. In the hill country of Australia, for example, a pasture improvement program of aerial seeding and topdressing with molybdenum and superphosphate raised the carrying capacity of the land from less than one sheep to the acre to three or four. Further increases are expected as the soil continues to be built up with the aid of plant food.

Both in Australia and in New Zealand, where use of molybdenum is now also a widespread agricultural practice, much of the land that shows such response to molybdenum consists of acid soils. On such soils, legumes were difficult, if not impossible, to establish, and this could be accomplished only with heavy liming. But the quantities of limestone required were so high and cost of applying it in difficult terrain so great, that large-scale liming seemed to be out of the question.

In acid soils, however, molybdenum is often present in a form unavailable to the plant. Under such conditions, one of the principal functions of liming is to release molybdenum to the plant by raising the pH of the soil. This proved to be true in large areas of those countries, and farmers find that in some cases, application of a few ounces of molybdenum in the form of sodium molybdate eliminates the need for several tons of limestone. Where the need for lime is not entirely eliminated, it is greatly reduced—in some areas, to as little as 200 lb. an acre when treatment with molybdenum is adopted.

Use of molybdenum has not been restricted to forage crops. In Australia and New Zealand, practically every variety of vegetable and field crop grown there is treated also. These include flax and garden crops such as lettuce, turnips, cauliflower and cucumbers, and even cereals, which were not treated until recently because of their exceptionally low requirements.

In the United States, where the development is just moving out of the research stage into large-scale application, molybdenum shows results on crops such as citrus fruit, cauliflower, broccoli, lettuce, pumpkin, squash, alfalfa, clover, beans and peas. Citrus is about the largest user thus far, with an estimated one-half of the Florida groves being treated. No crop, however, can be written off as showing no response until it has been tested on a particular soil, although in general, lime-loving crops seem more prone to deficiencies than acid-loving crops. Other crops, in addition to those mentioned above, for which responses are reported include Brussels sprouts, rutabagas, rape, tomatoes and beets as well as ornamentals like marigolds, hibiscus, roses and carnations.

Molybdenum has two distinct functions in plant growth. In legumes such as clovers, alfalfa, soybeans and peanuts, it is necessary for fixation of atmospheric nitrogen. In all plants, non-legumes as well as legumes, traces of the element are required to reduce nitrate nitrogen to a form which the plant can use in building protein.

Consequently, molybdenum-deficient legumes exhibit symptoms of nitrogen starvation. Lacking in protein, they are pale yellow in color, stunted and hard to establish. Non-legumes show symptoms of excess nitrate. Leaves of plants are yellowish in color, chiefly in spots where nitrate accumulates between the veins and around the leaf margins. The leaves may curl or cup upwards, or become distorted, often developing into little more than the midrib with a narrow wavy green strip along either side.

For many years, such symptoms in cauliflower and related vegetables were described as "whiptail," but the disease was shown to be a molybdenum deficiency just a few years ago. Similarly, "yellow spot" of citrus is another molybdenum deficiency disease so identified only in 1951, although growers had been troubled with it for years.

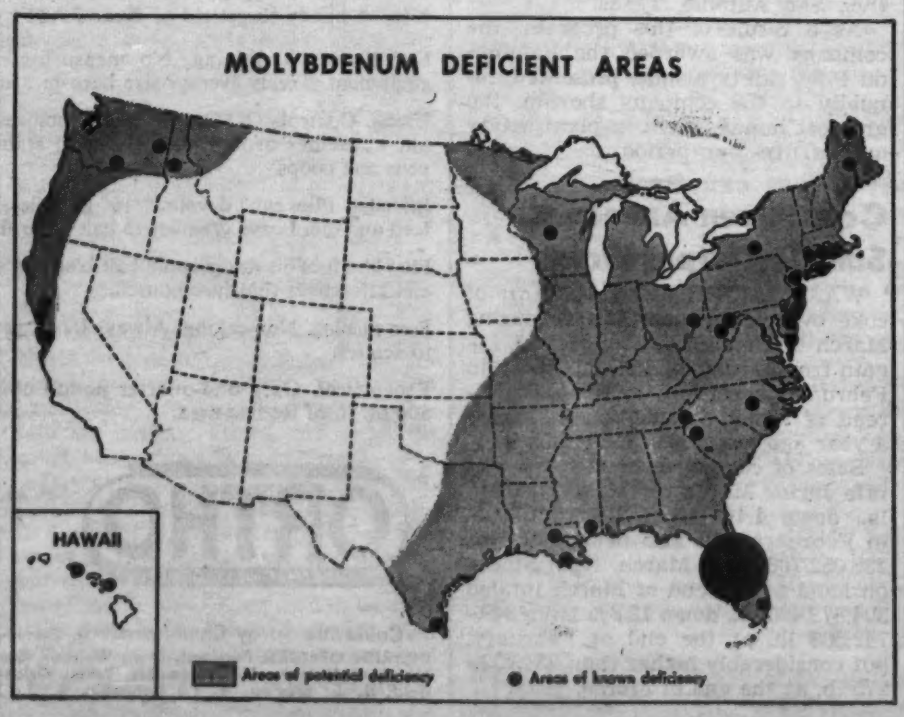
Granted that the application of molybdenum in Australia and New Zealand has benefited the agriculture of these countries, how can manufacturers and distributors of fertilizers in the U.S. realize the full potential of the market here? Some of the chief problems are involved in the location of deficient areas; rates and methods of application and methods of incorporating such small amounts of molybdenum into fertilizers and other agricultural chemicals.

Soil acidity is frequently the cause of molybdenum unavailability, thus crops growing on acid soils show the most response to this element. Among the acid soils in which molybdenum is likely to be unavailable, are soils high in iron oxides, high in available manganese, soils recently brought under cultivation from pasture or waste; and soils heavily dressed with sulfates.

On some soils, of course, molybdenum in any form is insufficient. Soils likely to fall into that category are those that have been highly leached, such as coastal sands and hill country soils, heavily cropped soils, and alkaline soils in areas of heavy rainfall.

Deficiences are not likely to be found in highly productive fertile soils that have been heavily limed or manured, alkaline soils in areas of low rainfall, and peat and muck soils.

The sections of the United States in which molybdenum deficiencies have thus far been reported, correspond to these "specifications" for soil types on the suspect list. All of these deficient areas are in the Pacific Northwest, along the Pacific Coast, and in the acid-soil sections east of the Great Plains, with the greatest concentration in the highly leached sandy soils of the coastal plains of the Atlantic and Gulf coasts. The great number of these molybdenum responses reported in the last few years when the tempo of testing has increased, indicates that further field testing will reveal additional areas of need.



Where deficiencies occur, the rate of application depends upon the soil and the crop. In general, pasture crops will require about 2½ ounces of sodium molybdate (or other molybdenum chemical) every four to six years. Treatment of horticultural crops with about 8 oz. an acre annually is usually satisfactory, and the recommended rate for field crops is about 2 oz. an acre annually.

Since too much molybdenum can affect cattle and sheep with a disease known as "teartness," recommended rates should not be exceeded, especially on forage crops. This disease, actually an induced copper deficiency in the animal, is associated with isolated peat soils and some poorly drained alkaline soils where molybdenum has a tendency to accumulate naturally; no occurrences have ever been attributed to application of molybdenum chemicals.

Feeding the animals with copper sulfate in licks or drinking water is a simple corrective measure. On the other hand, chronic copper poisoning in cattle and sheep, a serious problem in Australia, may result from a molybdenum deficiency; hence, adding molybdenum to the diet is the antidote in this reverse case.

Molybdenum chemicals used in agriculture are the soluble salts, ammonium and sodium molybdate, and the insoluble oxide. Molybdic oxide, because it is insoluble, is generally used only with dry formulations.

A molybdenum chemical can be applied to the soil or to the foliage of affected plants in a number of ways. Mixing with fertilizer and applying as an aerial or surface top dressing is a simple, effective method widely used in Australia and New Zealand. Limited areas have been treated this way in Washington State.

Incorporating it with other agricultural chemicals in field sprays is another excellent method and one used by Florida citrus growers. Molybdenum can also be applied alone in sprays or in aerial dusts with an inert carrier.

Soaking or dusting seed prior to sowing is also suitable, but in the case of soaking, premature germination may occur in hot climates. Another related seed-treating method for legumes is to incorporate sufficient molybdenum in the bacterial inoculant.

In the Australian and New Zealand work, so-called "molybdenized superphosphate" — (superphosphate containing two pounds of sodium molybdate or molybdic oxide per long ton of product)—is the common molybdenum-containing product. The molybdenum is introduced by mechanical mixing, but some producers prefer to dissolve the molybdenum compound in the sulfuric acid used to acidulate the crude phosphate rock. Another method used by one company is spraying a concentrated solution of sodium molybdate on the super as it moves along the conveyer belt prior to bagging.

Producers of mixed fertilizers in this country could employ any one of these techniques. The products now appearing on the market here have had the molybdenum added with other trace elements in special products, blended at the point of original manufacture. (These mixtures of molybdenum and other trace el

ents have also been available for ixing by the user.) As use grows, it ems probable that packaged fertiers for special horticultural crops ill be mixed by the original manufacturer, but that general-purpose rtilizers will have the molybdenum dded at the local mixer level.

How soon these molybdenum-containing products will be a sizable factor in sales of farm chemicals is difficult to predict. But there are some rough guides in the experience of the overseas pioneers and in our rapid progress of the past few years in locating our molybdenum deficient soils.

In New Zealand, some half million acres, or about one per cent of the total land area, were treated with molybdenum about four years after application to pastures really got underway. The 30,000 tons of molybdenized superphosphate so consumed represents an increase in demand for fertilizer materials. Without molybdenum's contribution to productivity, both the pasture improvement program and its concomitant need for superphosphate would be nonexistent. Future increases in the use of molybdenum will similarly spur the demand for superphosphate.

The use of molybdenized superphosphate in the State of New South Wales, Australia, shows an even steeper upward trend: in 1954, 5% of all the superphosphate used was molybdenized; in 1955, it was expected to reach 10%. Currently 300,000 tons of superphosphate are consumed annually in that state, and within ten years that is expected to approach 600,000-000,000 tons a year.

Moreover, it is estimated that there are tens of millions of acres throughout Australia which can be upgraded with molybdenized superphosphate. This could be regarded as another new market for several million tons of super a year.

Turning to the United States, we see that the first reported molybdenum deficiency was in 1948 on a California soil without agricultural significance. The next response was obtained in 1950 in New Jersey. As of now, some 35 deficient areas have been reported in 18 states; more than half of these were identified in the last two years.

The cost of applying molybdenum chemicals runs from 15¢ to 50¢ an acre for material, and from a few cents to a dollar for the application. The farmer thus may control deficiency diseases where croplands are known to lack this element, and where molybdenum can reduce or replace lime, he may be able to develop lands now considered too poor to be upgraded. In both cases, the fertilizer manufacturer has promise of a new market.

Flight Date Set for New Applicating Plane

TORRANCE, CAL.—The Transland Co. here has announced that the flight date has been scheduled during June for the Ag-2, its new applicating airplane.

The firm said that the plane has a payload exceeding 2,000 lb.—all dust in a 53 cu. ft. hopper, or 250 gal. of liquid in ground accessible wing tanks or combinations of solids and liquids.

The plane is an all-purpose, dust-liquid spray, agricultural aircraft, specifically designed for aerial applicating, the firm stated.

George S. Wing, president of the Transland Co., said that the Ag-2 sales program will be conducted through direct franchised dealers with exclusive and protected territories.

ROSE GROWERS DAY

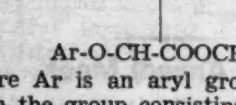
ST. PAUL—The fifteenth annual Rose Growers' Day will be held on the University of Minnesota's St. Paul campus June 21.

Industry Patents and Trademarks

Patents

2,744,817. Method and Composition for the Control of the Growth of Undesirable Vegetation. Patent issued May 8, to Burton V. Toornman, Scotts, Mich., assignor to the Dow Chemical Co., Midland, Mich. A method for the control of the growth of vegetation which comprises applying to and mixing with a growth medium, a growth-inhibiting amount of N,N-diphenyl crotonamide.

2,744,818. Low Volatile Herbicidal Compositions. Patent issued May 8, to William R. Davie, Pittsburgh, assignor to Pittsburgh Coke & Chemical Co. As a new herbicidal mixture of esters, the mixture of esters having the formula



where Ar is an aryl group selected from the group consisting of phenyl, 2-methyl-phenyl, beta naphthyl and the aryl nucleus chlorinated derivatives thereof and R is a mixture of alkyl radicals containing substantial amounts of each of normal, saturated C_6, C_7 and C_8 groups and the 2-methyl isomers thereof.

2,744,819. Method for the Control of Undesired Grasses. Patent issued May 8, to Burton V. Toornman, Scotts, Mich., assignor to the Dow Chemical Co., Midland, Mich. A method for the control of annual grass weeds which comprises distributing 4-chlorophenyl 4'-chlorobenzenesulfonate in intimate admixture with the soil in close proximity to annual grass seed under ambient conditions normally leading to the germination and growth of such seed, said sulfonate being employed in amount sufficient to suppress the growth of said seed.

2,744,862. Production of Benzene Hexachloride. Patent May 8, to Bernard H. Micolaisen, Lewiston, N.Y., assignor to Olin Mathieson Chemical Corp. A cyclic process for the production of benzene hexachloride from benzene and chlorine by reaction at a temperature of less than about 70° C. and in the presence of catalyzing light which comprises circulating a liquid stream consisting of benzene hexachloride-in-benzene solution between an absorption zone and a reaction zone, withdrawing to a product recovery zone a minor portion of the stream circulating from the reaction zone, adding make-up benzene to the stream circulating to the absorption zone, adding chlorine to the circulating stream in the absorption zone in an amount equal to about 1 to slightly more than 2% of the theoretical amount of chlorine required to convert the total amount of uncombined benzene present in the circulating stream leaving the absorption zone to benzene hexachloride and sufficient to maintain a concentration of benzene hexachloride of about 17 to 22% in the circulating stream leaving the reaction zone, and recovering benzene hexachloride from the benzene hexachloride-in-benzene solution in the product recovery zone.

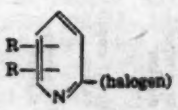
2,745,729. Herbicidal Composition. Patent issued May 15, to David T. Mowry, Kirkwood, Mo., and Arthur H. Schlesinger, Dayton, Ohio, assignors to Monsanto Chemical Co., St. Louis, Mo. The method of preventing plant growth which comprises applying allyl phthalate to media normally supporting said growth, said phthalate being applied to said media in a quantity which prevents plant growth.

2,745,782. Parasiticide Composition of Reduced Phytotoxicity and Method. Patent issued May 15, to Doane Stewart, Garden Grove, Cal., assignor to the Dow Chemical Co., Midland, Mich. An aqueous parasiticide composition comprising dispersed therein (1) a lower alkanolamine salt of 2,4-dinitro-6-cyclohexyl-phenol as an active toxicant, and (2) sufficient methylcellulose to accomplish a reduction in the phytotoxic properties of the amine salt.

2,745,781. Parasiticide Composition and Method. Patent issued May 15, to Doane Stewart, Garden Grove, Cal., assignor to Dow Chemical Co., Midland, Mich. An aqueous spray composition having dispersed therein an ethanolamine salt of 2,4-dinitro-6-secondary-butyl-phenol and methylcellulose, the latter being such proportion as to exert an energizing action upon the amine salt compound as regards parasiticidal and residual activity.

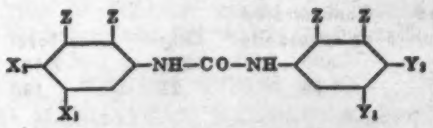
2,745,815. Method and Compositions for the Improvement of Soil Structure. Patent issued May 15, to Dorsey R. Mussell, Clare, Mich., assignor to Dow Chemical Co., Midland, Mich. A method for the improvement of soil structure which comprises distributing in the soil and in intimate admixture therewith, a water-soluble polyethyleneimine, said polyethyleneimine having a viscosity for an aqueous 25% solution of at least 20 centistokes at a temperature of 25° C.

2,745,826. Process of Preparing Thiourea Complexes. Patent issued May 15, to Serge Semenoff, New Brunswick, and Morris A. Dolliver, Stelton, N.J., assignors to Olin Mathieson Chemical Corp., New York. The method which comprises interacting a 2-(halo)- pyridine compound of the general formula:



wherein each R is a member of the class consisting of hydrogen, lower alkyl (lower alkyl)-oxy and halogen, with an oxidizing agent of the peroxide type to form the correspondingly-substituted 1-oxide base; treating the reaction mixture containing said 1-oxide base with a thiourea, in a solvent for the reactants; and recovering the thiourea complex formed.

2,745,874. Insecticidal Derivatives of Diphenyl Urea. Patent issued May 15, to Guido Schetty and Walter Stammbach, Basel and Robert Zinkernagel, Riehen, near Basel, Switzerland, assignors to J. R. Geigy A.G., Basel, Switzerland. A diphenyl urea compound having the general formula:



wherein one X represents the trifluoromethyl group and the other X represents a member selected from the group consisting of hydrogen, chlorine and bromine, one Y represents a member selected from the group consisting of chlorine, bromine and the trifluoromethyl group, the other Y represents a member selected from the group consisting of hydrogen, chlorine and bromine and Z represents a member selected from the group consisting of hydrogen, chlorine and bromine.

2,746,855. Potassic Nitrophosphate Fertilizers and Method of Preparing Same. Patent issued May 22, 1956, to Samuel Ruosch, Visp, Valais, Switzerland. A method of preparing potassic nitrophosphates comprising the steps of decomposing crude phosphates with nitric acid, dehydrating the decomposed produce containing phosphate and calcium nitrate to a water content of substantially not more than about 2.4 moles of water per 1 mole of calcium nitrate, admixing potassium chloride to said decomposed product in an amount sufficient to obtain an end product of about 5 to 14% of K_2O, kneading said mixture at a temperature of about 40 to 65° C. for a time insufficient to react more than 25% of said potassium chloride with said calcium nitrate to form calcium chloride and potassium nitrate, thereby maintaining a ratio of less than one mole of potassium nitrate for each 5 moles of calcium nitrate, and granulating the mixture.

Trademarks

The following trademarks were published in the Official Gazette of the U.S. Patent Office in compliance with Section 12 (a) of the Trademark Act of 1946. Notice of opposition under Section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of $25 must accompany each notice of opposition.

The trademarks described below were published in the Official Gazette dated May 8, 1956:

HC-1281, in capital letters, for herbicides. Filed July 20, 1954, by Heyden Chemical Corp., New York. First use on or about June 18, 1954.

Shot Gun, in hand-lettered caps and lower case, for insecticidal and fungicidal garden sprays and dusts. Filed July 1, 1955, by B. G. Pratt Co., Paterson, N.J. First use, April 19, 1955.

Chlorea, in italic capital letters, for grass and weed-killing chemical. Filed July 5, 1955, by Chipman Chemical Co., Inc., Bound Brook, N.J. First use, Dec. 15, 1954.

Chicagro, in ultra bodoni capital letters arranged in an arch, for fertilizer. Filed Dec. 14, 1954, by Lawn-Tex, Inc., Chicago, Ill. First use on or about Nov. 15, 1954.

Emblem, depicting three fanciful dragons within octagonal shield, for complex granulated fertilizers and fertilizer mixtures. Filed Sept. 14, 1955, by Societe Anonyme des Manufactures des Glaces et Produits Chimiques de Saint-Gobain, Chauny & Cirey, Paris, France. First use during March, 1949; in commerce since April, 1951.

Imp, in tooled-out letters, for specialty fertilizers. Filed Sept. 20, 1955, by Garfield Williamson, Inc., Jersey City, N.J. First use, 1935.

The trademarks described below appeared in the Gazette dated May 15, 1956:

Wil-Kil, in heavy lower case letters, for insecticide. Filed July 18, 1955, by Wilbur-Ellis Co., Seattle, Wash. First use, March 21, 1955.

Nutro, in capital letters, for fertilizers. Filed Dec. 4, 1953, by Smith-Douglass Co., Inc., Norfolk, Va. First use, Aug. 10, 1934.

Montansalpeter, in capital letters, for fertilizers. Filed Feb. 4, 1955, by Ruhr - Stickstoff Aktiengesellschaft, Bochum, Germany. First use 1945; in commerce, September, 1952.

CPF, with the letter "C" extended downward, for mineral fertilizers. Filed Oct. 19, 1955, by National Mines & Minerals, Inc., Denver, Colo. First use on or about June 6, 1955.

These trademarks appeared in the Patent Office Gazette of May 22, 1956:

PRO-PHION, in capital letters, for herbicides. Filed June 22, 1954, by Pittsburgh Coke & Chemical Co., Pittsburgh, Pa. First use June 1, 1954.

TEN-TEN, in capital letters, for weed killing composition. Filed March 28, 1955, by Dow Chemical Co., Midland, Mich. First use, March 3, 1955.

99, in heavy lettering, for weed killing composition. Filed March 28, 1955, by Dow Chemical Co., Midland, Mich. First use, March 3, 1955.

TCB, in spaced-out capital letters, for herbicides. Filed April 8, 1955, by Heyden Chemical Corp., New York. First use on or about March 18, 1955.

FAIRFIELD, in caps and small caps, on red background, for insecticides and herbicide chemicals and concentrates, and other fine chemicals. First use, Feb. 3, 1955.

(Continued on page 21)

FERTILIZER SITUATION

(Continued from page 1)

of producers, manufacturers of mixed fertilizers, and distributors have increased during this season. From 1949 until 1954, January peak-of-the-season stocks of nitrogen—including by-product material—in the hands of producers in the form of anhydrous and aqua ammonia, ammonium nitrate, ammonium sulfate and nitric acid varied from about 40,000 to around 80,000 tons.

"On Jan. 31, 1956, however, stocks at manufacturing plants were equivalent to 289,400 tons of nitrogen in these forms.

"In former years these stocks decreased between Feb. 1 and March 1 by about 15,000 tons of nitrogen, but in 1956 they increased 2,000 tons. It is not known how much is in the hands of fertilizer mixers or retail distributors, with the exception of anhydrous ammonia distributors and applicators. It is thought that the latter on Jan. 31, 1956 had at least 150,000 tons of nitrogen in their tanks.

"The supply of fertilizer nitrogen for the year ending June 30, 1956 is currently estimated to be 2,303,000 tons or 2.3% more than the 1954-55 supply (table 1).

"Production, as shown in the first line in the table, includes carryover of the previous year's production in excess of normal working stocks. Production of ammonium sulfate, both synthetic and by-product, has increased more rapidly than was expected. The manufacture of other nitrogenous materials has proceeded approximately according to schedule.

"If present prospects are fulfilled, total production of nitrogen for the season will exceed that for 1954-55 by seven percent. When excess carryover from the previous year is added, this figure becomes 12%.

"Present estimates of the exports of ammonium nitrate and ammonium sulfate are substantially higher than the September estimates, which were above those for the previous year.

"Imports have decreased even more than predicted. It now appears that over 100,000 tons less nitrogen will be imported than in the year ended June 30, 1955.

"From data given in table 2, the supply of available P_2O_5 for 1955-56 appears to be about 2.6% more than was expected last September. Supplies of all types of available phosphates are ample for the immediate future.

"The largest difference from the previous year shown in the table is in the production of concentrated superphosphate, which increased even more than predicted.

"Exports of phosphates increased, but somewhat less than expected. Imports of ammonium phosphates were very high in the spring of 1955, but have decreased substantially since then. This is reflected in the lower estimate for other phosphorus. Stocks in the hands of primary producers, exclusive of superphosphate in base and mixed goods, were equivalent to 415,381 tons of available P_2O_5 on March 1, 1956. This is approximately 13% more than on the same date a year earlier.

"Potash deliveries for the first eight months of the present fiscal year indicate that the September estimates were nearly correct for each type of potash fertilizer with the exception of the sulfates. Production of the latter increased, but deliveries are not up to expectations. For the details see table 3.

"Exports of potash increased substantially, but not as much as forecast. Imports of chloride increased, and of sulfate decreased. The net effect of these changes is to raise indicated supplies 3.5% over the preceding fiscal year."

Table 1—1955-56 Nitrogen Supply

(Revised Estimates[1] for Fertilizer, Thousands of Short Tons of N)

Item	Ammonium nitrate[2]	Ammonium sulfate & ammonium sulfate nitrate	Urea	Other solids[3]	Natural organics	Compound solutions[4] For ammoniation	Compound solutions[4] Direct application	Ammonia[5] For ammoniation	Ammonia[5] Direct application	Totals
U.S. Production										
Synthetic ammonia..	420	245	50	96	..	470	75	190	460	2,006
By-product ammonia.	..	[6]203	..	..	..	..	..	2	..	205
Natural organics ...	..	..	..	..	30	..	..	..	..	30
Total	420	448	50	96	30	470	75	192	460	2,241
Exports[7]	29	136	5	21	1	40	..	7	..	239
Sup. from domest. sources	391	312	45	75	29	430	75	185	460	2,002
Imports[7]	80	40	23	150	4	..	..	4	..	301
Total supply	471	352	68	225	33	430	75	189	460	2,303
Percent change of September, 1955 estimate										—2.0
Percent change from 1954-55 supply										+2.3

[1]Based on actual production during eight months, exports and imports for the first seven months, and on rates of production and similar information for the rest of the period.
[2]Includes mixtures with limestone.
[3]Includes estimated ammonium phosphates, sodium nitrate, calcium nitrate, cyanamid and nitraphosphates.
[4]Includes ammonium nitrate, ammonia-ammonium nitrate and ammonia-urea solutions in water.
[5]Includes aqua ammonia.
[6]Includes ammonium phosphate produced from by-product ammonia.
[7]Includes the estimated nitrogen content of imported and exported mixed fertilizers and ammoniated superphosphate.

Table 2—1955-56 Phosphorus Supply

(Revised Estimates for Fertilizer, Thousands of Short Tons Avail. P_2O_5)

Item	Normal s'p'rphosph'te[1]	Enriched s'p'rphosph'te	Concentrated s'p'rphosph'te	Other[2]	Total
U.S. Production	1,557	35	690	200	2,482
Exports[3]	90	..	65	25	180
Supply from domestic sources	1,467	35	625	175	2,302
Imports[3]	1	..	1	55	57
Total supply ...	1,468	35	626	230	2,359
Percent change of September, 1955 estimate					+2.6
Percent change from 1954-55 supply					+2.0

[1]Includes wet-mixed base goods.
[2]Includes ammonium phosphates, basic slag, fused rock phosphate, liquid phosphoric acid, dicalcium phosphate, high-grade residue, natural organics, and other sources of available P_2O_5.
[3]Includes the P_2O_5 content of mixed fertilizers and ammoniated superphosphate.

Table 3—1955-56 Potassium Supply

(Revised Estimates[1] for Fertilizer, Thousands of Short Tons of K_2O)

Item	Potassium chloride	Potassium sulfate and sulfate of potash-magnesia	Manure salts	All other materials[2]	Totals
Deliveries from domestic sources ..	1,773	113	1	26	1,913
Exports[3]	119	13	..	1	133
Supply from domestic sources ..	1,654	100	1	25	1,780
Imports[3]	126	18	..	7	151
Total supply	1,780	118	1	32	1,931
Percent change of September, 1955 estimate					—0.4
Percent change from 1954-55 supply					+3.5

[1]Estimated on the basis of actual exports, imports and deliveries up to March 1, 1956, and present prospects for the rest of the season rather than the quantities above ground at the mines, or obtainable by import.
[2]Includes potassium nitrate, potassium carbonate, potash-lime, nitrate of soda-potash and natural organics.
[3]Includes the potash content of mixed fertilizers

CSMA in Annual Meet

CHICAGO, ILL.—At least a score of technical papers, five surveys of 1955 production in the chemical specialties field, and discussions of 1956 business forecasts were presented at the 42nd mid-year meeting of the Chemical Specialties Manufacturers' Association here May 20-22. About 800 delegates attended general sessions and technical meetings at the Drake Hotel, headquarters of the convention.

Goodland Opens New Iowa Plant

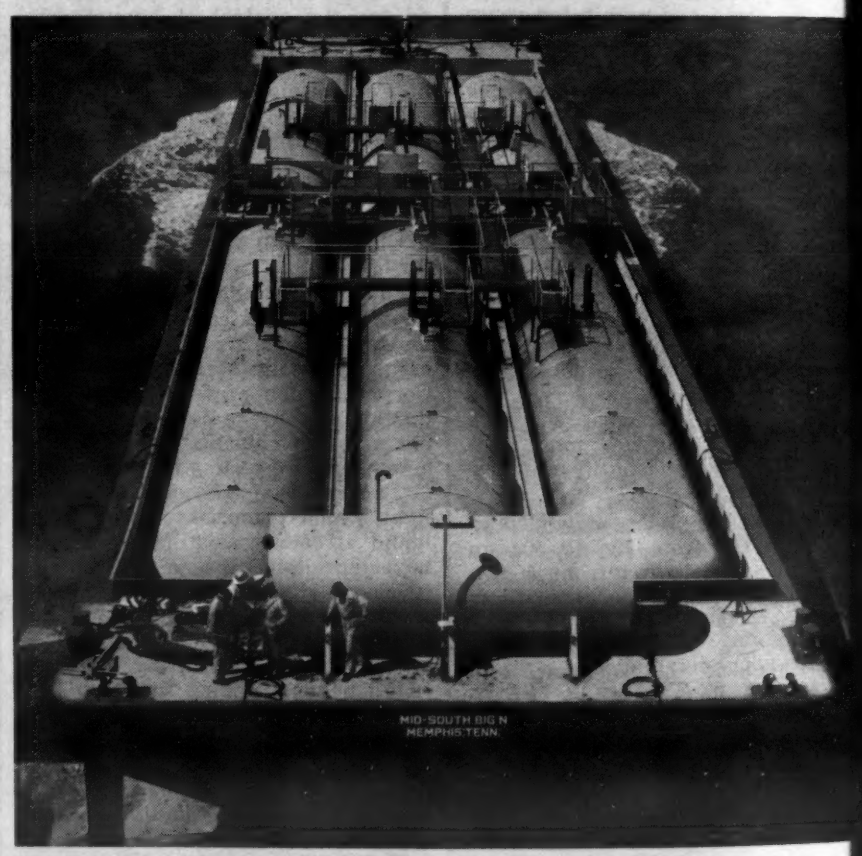
WEST UNION, IOWA—Goodland Agricultural Chemicals, Inc., opened a new liquid fertilizer plant here recently. The plant will serve an area of approximately 120 miles in radius through tank truck distribution. Products are marketed under the name "Liqui-Gro."

The Goodland firm has headquarters in Dubuque, Iowa, and operates several liquid fertilizer plants in the area. Robert Durbow is president of the firm and Elmer Landas is manager of the new West Union installation.

The plant was designed and fabricated by Fabricated Metals, Inc., San Leandro, Cal., which built the reactor, converter, transfer equipment, valves and fittings, which were assembled by the Goodland personnel.

Herbicide Study

BERKELEY, CAL.—Dyes that glow under ultra-violet light are showing plant scientists at the University of California how weed killers get inside living plants. Leaves dipped in solutions of these dyes and then washed off will, under ultra-violet light, fluoresce in those areas where the weed killing chemicals are absorbed. With the dyes as tracers, botanist Herbert B. Currier is planning to study surfactants or detergents that are mixed with weed killers to make them enter plants more quickly.



ANHYDROUS AMMONIA BARGE LAUNCHED—One of two specially constructed barges for transporting NH_3 is shown being launched at the Ingalls Shipbuilding Corp., Pascagoula, Miss., for Mid-South Chemical Corp., Memphis. The barges transport ammonia on the Mississippi River and intracoastal waterway from plants in Louisiana to Mid-South's new terminal locations including installations at Harlingen, Texas, New Iberia, La., Peoria, Ill., and Memphis.

Mid-South Chemical Transports NH3 in Pair of New Barges

MEMPHIS, TENN.—Two specially constructed barges for transporting anhydrous ammonia are being placed in service by Mid-South Chemical Corp. of Memphis. Built by Ingalls Shipbuilding Corp., Pascagoula, Miss., the barges have a capacity of approximately 1,000 tons each.

The barges are now transporting ammonia on the Mississippi River and Intracoastal Waterway from ammonia manufacturing plants in Louisiana to Mid-South's network of newly-constructed terminals, which include installations at Harlingen, Texas, New Iberia, La., Memphis and Peoria, Ill. The first barge load of ammonia was unloaded at the new Peoria, Ill., terminal the middle of May.

From storage facilities at these points, the ammonia is transported by tank car and highway transports to more than 200 distributing stations which are situated at strategic locations within a 150-mile radius of the terminals.

The new barges have been named the "Mid-South Big N" and the "Mid-west Big N." In addition to these two barges, the company has in service several other vessels leased for the purpose.

Mid-South Chemical Corp. is partly owned by Cities Service Co. and Continental Oil Co.

FARM PROGRAM

(Continued from page 1)

or 1956 only (a different pattern is xed for 1957 and later crops):

The 1956 corn crop in the commerial corn area was given an allotment of 43 million acres. Farmers who stay within their proportionate hare of that acreage allotment are ligible for price support at not less han $1.50 per bushel. That ruling as taken under the farm act of 1949 efore the new legislation passed Congress.

Also before Congress acted when he President vetoed the first farm ill, he took administrative action, rdering USDA to make available rice support to non-compliers with creage allotments in the commercial orn belt at $1.25 per bushel. This droit stroke put a floor under cash orn in the commercial corn belt tates where that crop had been sell- ng at discouragingly low prices dur- ng this past crop year.

Those factors taken by themselves opened the sales gate for the plant food industry to encourage farmers to step up plant food use to the optimum on good corn lands.

But the second farm bill passed by Congress and approved at the White House went a step farther.

In its soil bank provision, effective his year, where practicable, (only orn and spring wheat are seen as racticable)—the soil bank can be- ome operative for the conservation eserve phase of this part of the bill or the 1956 crops. This soil bank rovision does not authorize any ad- ance payments for 1957 crop con- racts in the soil bank and the soil ank will only apply to wheat, corn, otton, peanuts, tobacco and rice. The mall feed grains—oats, rye, barley nd grain sorghums will not be cover- d by soil bank operations at any time nder this law during the period— 956-57-58-59.

For the 1956 corn crop the law ixes a corn base acreage of 51 mil- ion acres—an increase over the corn creage allotment under the present arm act of 1949—and an allotment f a distinctly different nature and urpose.

This 51 million acre allotment for the commercial corn area is called a corn acreage base from which farmers can measure the required 15% contribution to the conservation reserve phase of the soil bank. For 1956, the corn farmer will not participate in the soil bank in the acreage reserve program. The conservation reserve program of the soil bank is the long range program somewhat parallel to the agricultural conservation program which will require farmers to make soil bank contributions from three to ten year contracts taking marginal or fringe land out of field crop production.

The 51 million corn acreage base pplicable only to the 1956 crop is the asis from which farmers may take and out of cultivation this year or low under corn or other crops and btain price support for their corn creage base at $1.50 per bushel sup- ort. At the same time they will be ligible for soil bank participation in he conservation reserve program and btain certificates of reimbursement or the land taken out of production n their farm.

However, in taking land out of pro- uction from the 51 million corn creage base, the producer may take and from other crops, up to 15% of is proportionate share of the 51 mil- on acre basis for corn. Thereby he ill obtain price support for his full orn acreage at a 51 million acre na- onal level and also receive soil bank ayments for the land which he puts nto the soil bank. He can put hay, asture, oats, or barley or woodland asture into the soil bank if such de- osit to the soil bank is equal to 15% f his corn acreage base proportionate to the 51 million acreage allotment for the commercial corn belt.

It would seem that the corn farmer in the commercial corn belt can have his corn and eat it too!

For the non-commercial corn belt, another opportunity less inviting probably than in the commercial corn belt, is the government price support for that area of 82.5% of the price support for the commercial corn belt which comes out at approximately $1.24 per bushel.

This is also seen as an attractive price for corn from these states outside the commercial corn belt.

Corn grown outside the commercial corn belt is now taking on a greater market attractiveness as the feed industry moves into a pre-mix deal. In this deal, large feed manufacturers shift from selling a complete line of feeds or a complete bag of feed containing grains and concentrate feeds, to a pre-mix package containing all the necessary concentrates and medicated products to which the local feed merchant can add local grains. In such an arrangement the basic feed manufacturer of the pre-mix does not have to pay the high freight rate costs of the grain component of the feed from midwestern points of origin.

This change of the nature of the feed manufacturing business is slowly making locally grown feed grains a more attractive proposition. This is another sales tool in the kits of the front line workers for the plant food and pesticidal chemical industries.

For feed grains other than corn, the price support level remains at 76% of parity for those crops—oats, rye, barley and grain sorghums—levels which are higher than USDA originally planned but not so high that they would check their flow in domestic markets into feed deficit areas.

Another aspect of pending farm legislation which may make for firm price levels, is the recommendation to Congress from the White House that the Public Law 480 funds which are virtually exhausted, be increased by an additional 1.5 billion dollars to be expended in another 18 months, to finance export sales of U.S. agricultural surpluses.

The entire situation here adds up to a political equation—one in which the administration is driving for higher price levels for farm commodities in the critical corn belt and great plains states. Although the administration has failed to go along with high rigid levels of price supports, it has in effect obtained an administrative position wherein it can gain great credit for setting a floor price for corn in the corn belt. This floor price is well above the disastrously low levels of last year when corn sold between 30-40 cents under the county loan rate.

The substance of this farm law which the Chief Executive signed last week, is that corn prices will be high—high enough surely to attract producers to get maximum yields per acre and justify maximum use of plant food materials even at this late date.

Another tool in the plant food salesman's kit when dealing with the corn producer is the important knowledge given to Croplife here last week which reveals a grave shortage of blackstrap molasses which too frequently has been a competitor with corn in the feed industry. Molasses industry spokesmen here queried Croplife on the corn outlook saying that the U.S. industrial alcohol producers are watching the USDA sales policy on corn and will be in the market for any out-of-condition stocks of CCC surpluses which may occur.

This whole surplus situation is somewhat topsy-turvy. In face of the heavy surpluses in the hands of the government, it seems absurd to think that grain prices can rise substantially. However with the U.S. the monopolistic holder of the major surpluses of grain and cotton, and this being a presidential election year with the control of Congress also at stake, it is probable that all economic factors must be modified by the political aspect.

No matter who is the loser in this topsy-turvy world, it now seems that the plant food industry can on balance do more substantial good for its farmer customers by pointing out to them the alternatives which are now available and let them make the economic decision.

By noting the provisions of this farm law, the good plant food salesman may this year be making customers for many years to come.

TRADEMARKS

(Continued from page 19)

ATOMIC, in hand-drawn capital letters in green, for agricultural insecticides and fungicides. Filed July 28, 1955, by Southern Insecticide Corp., Estill, S.C. First use, April 18, 1955.

FOSVEX, in capital letters, for insecticide. Filed June 27, 1955, by Food Machinery and Chemical Corp., New York. First use, on or about Nov. 21, 1947.

TURFSAVER, in stencil capital letters, for fertilizers. Filed March 29, 1955, by Garfield Williamson, Inc., Jersey City, N.J. First use, Oct. 2, 1954.

SOHIO, in capital letters, within red and blue shield, for fertilizer. Filed May 9, 1955, by the Standard Oil Co., Cleveland, Ohio. First use, about April 1, 1955.

Johnson Grass Troublesome in Virginia

BLACKSBURG, VA. — Johnson grass is an unwelcome pest on an estimated 10,826 farms in Virginia, and these farms likely comprise some of the best cropland in the state, according to John M. Amos, associate plant pathologist at Virginia Polytechnic Institute.

A recent survey showed farmers in 68 counties are concerned about the presence of the pest. Of that number, 14 counties reported general distribution while 54 counties reported distribution limited to certain areas.

New Kent and Charles City counties are currently planning an educational program aimed at the eradication of Johnson grass, and others doubtless will follow, Mr. Amos said.

KANSAS FIELD DAY

MANHATTAN, KANSAS—A plant science field day will be held at Kansas State College June 9. Tours will take visitors over the Kansas Agricultural Experiment Station agronomy farm, the plant disease nursery on the campus, and the lawn and turf grass plots. New machinery, such as one machine that mixes and applies liquid fertilizer, will be on display. At the agronomy farm visitors will see chemical control of wheat rust, chemical control of weeds, results of liquid mixed fertilizers on oats, different species of wheats and different wheat varieties developed from a specie.

Vulcan Vacation

BELLWOOD, ILL.—Offices, warehouses and shipping departments of Vulcan Containers Inc., manufacturers of steel shipping containers, will continue to operate during the annual vacation period from July 23 through Aug. 3, while production personnel in the steel pail department will be afforded their annual vacation. Limited tin can production will continue.

Olin Mathieson Starts Experimental Unit to Make Ammonia from Coal

MORGANTOWN, W.VA. — Olin Mathieson Chemical Corp.'s new experimental unit for the production of synthesis gas by partial oxidation of coal, was scheduled to begin operation here last week, according to M. B. Wright, manager of the company's Morgantown plant.

Although it will be used for experimental purposes only, the unit will be capable of producing synthesis gas in the amount required to manufacture approximately 80 tons a day of ammonia or equivalent methanol. It is the first unit ever constructed of this size and type. The size is the same as that anticipated for the units to be used in commercial operation.

A. S. Gilliam of the Morgantown plant will be in charge of the new unit, working under the direction of the corporation's development department.

Olin Mathieson presently operates at Morgantown a plant built during World War II for the production of ammonia, methanol and other organic chemicals from synthesis gas obtained from the coking of coal. Ammonia is used in the manufacture of fertilizers, and other chemicals, while methanol is used in automotive antifreeze and as a solvent.

"It is expected that the partial oxidation process will eventually replace the present process for making synthesis gas at Morgantown," Mr. Wright said, "and that this will strengthen the plant's competitive position relative to newer plants using natural gas or petroleum as raw material."

The partial oxidation process being used is one developed by the Texaco Development Company. It is now in commercial operation elsewhere using natural gas and fuel oil as raw materials, and a small pilot unit has operated successfully on coal. The Morgantown experimental unit will determine the feasibility of commercial-scale operation using coal.

The process involves the partial combustion of coal with oxygen at high pressure to produce a synthesis gas, consisting principally of hydrogen and carbon monoxide, suitable for use in the manufacture of ammonia, methanol and related chemicals.

The existing plant will continue in full operation during the period of experimentation with the new unit, Mr. Wright said.

Howard K. Nason Named Monsanto Vice President

NEW YORK — Howard K. Nason of St. Louis has been elected a vice president of Monsanto Chemical Co. at a recent meeting here of the board of directors. On April 18, Mr. Nason was appointed general manager of the company's research and engineering division.

He came to Monsanto in 1936 as a research chemist. From 1939 to 1944 he was assistant director of research for Monsanto's plastics division at Springfield, Mass. He then was named director of development in the central research department at Dayton, Ohio, and became director of that department in 1948.

In 1950 he was transferred to St. Louis to become assistant to Dr. C. A. Hochwalt, Monsanto's vice president in charge of research, development and engineering. A year later he became director of research and development for the organic chemicals division.

Croplife®

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Western states.

BIOGRAPH—

J. A. Howell Guides Institute's First Year

Fertilizer manufacturers, producers of materials, and the industry as a whole, are fortunate in having strong, aggressive, and far-sighted leadership at the helm of the National Plant Food Institute, their trade association.

Joseph A. Howell, President of the Virginia-Carolina Chemical Corporation and first President of the National Plant Food Institute, characterizes the leadership of the Institute, which, soon, will observe a year of progress and service to the fertilizer industry.

Consolidating the National Fertilizer Association and the American Plant Food Council, last July, was no small accomplishment in itself. Mr. Howell was of course not the only industry leader who brought these potent forces together, for there were others, like E. A. Geoghegan, chairman of the board of directors of the Institute. But, Mr. Howell is representative of the high-calibre, long-range planning and efficient official who characterizes the best qualities of industrial and trade association leadership.

Qualities desirable in a president of the Institute cannot be separated from comparable attributes of a president of any one of the member companies that comprise the National Plant Food Institute. Therefore, the success of Mr. Howell in his own company, the Virginia-Carolina Chemical Corporation, assumes greater significance. He is a master salesman. And his salesmanship, based on sound judgment, has been an asset of inestimable value in helping to unite the two great trade associations.

As an executive who operates with a view that long-term gains are more important than short-term expedients, his associates view him with appreciation for his practical and constructive approaches to the problems of the industry he serves, as well as his own company.

Mr. Howell's success as a salesman stems from a careful analysis of the sales problem and meticulous preparation for the presentation.

His success is representative of achievements possible under the private enterprise system. In his own company, his associates and employees point with pride to the fact that he worked his way up from bookkeeper in 1922 to the presidency he now holds.

In commanding the respect of his associates, it is significant that of the 4,000 Virginia-Carolina Chemical Corporation employees, more than 1,400 have been with the company at least 10 years. He believes it a sounder business practice to "grow executive timber rather than to buy it from the outside."

Mr. Howell prepared himself well for the important position he now holds—working on his grandfather's newspaper, in the office of an Alabama Congressman, and attending George Washington University and the University of Alabama.

Modest in his manner, Mr. Howell would be the first to say that the Institute's board of directors and the executive committee deserve the credit for a year of successful operation for the trade association representing the fertilizer industry. But, in the course of success, the leadership that he has demonstrated in the fields of agricultural education and research profitably have been emphasized—both in his own company and in the Institute.

Just as he has expanded V-C during his administration, Mr. Howell envisions expansion for the Institute through even greater service.

The National Plant Food Institute, in a relatively short time, has further enhanced the good name of the industry and the services it provides and these achievements reflect great credit on the judgment of the Institute membership in selecting their officials.

Thus, as the Institute rounds out its first year and makes final preparation for its big annual meeting, the industry can well look back with pride and into the future with confidence as this anniversary comes and goes.

Agricultural Automation to Develop Further in Future

Automation, a boon to industry, is spreading into a number of new fields, and quite a number of persons are conjecturing whether or not it will ever be applied successfully to agriculture. Automation in industry is confined largely to production line assembly such as car engines or radios, but still none of these mechanical products are fully automated yet.

At the same time, farming has been "automated" a great deal over the years. When one considers the number of individuals required to do all the chores on the farm of the eighteen hundreds, one cannot help realizing that many significant steps have been taken toward automation, although the word itself is seldom associated with agriculture.

Carl R. Olson, who operates a farm management service in Illinois, discussed automation in agriculture before a recent meeting in Chicago. He said that the trend toward automation on the farm is clearly seen by the fact that in 1800, nine men were required on a farm to produce food for themselves and just one additional person.

Today, with less than 13% of our population on farms, one farmer produces food and fiber for himself and 17 additional people. In 1800, it should be recalled, the farm population constituted 80% of the entire population! These figures are not new, but each time we hear them, it makes us stop and consider once more, some of the developments that have come into the picture to create a tremendous change in the entire scene.

Increased fertilization and the saving of many crops from the ravages of insects and plant diseases have stepped up the effects of "automation" even though the means is not entirely mechanical. It does illustrate the importance of teamwork between the makers of chemical products and the agricultural engineers who devise machines for the application of these chemicals.

Mr. Olson cited some of these things along with the addition of electric power and the increasing numbers of tractors on the land. He reported that the California Agricultural Experiment station has projects on corn combine development, a machine for harvesting grapes and various other gadgets to reduce work in food processing plants. These innovations, added to the mechanical and chemical helps in growing crops with less manpower, bring actual automation much nearer to realization.

In conclusion, Mr. Olson declared that the future holds "many excellent opportunities to those with vision and daring souls." Their efforts at achieving complete automation on the farm may not be successful in every detail, but they may come closer to this goal than most of us can now visualize.

Croplife

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CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is $5 for one year ($8 a year outside the U.S.). Single copy price, 25¢.

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MEETING MEMOS

June 5-6—North Central Division, American Phytopathological Society, Kansas State College, Manhattan, Kansas.

June 5-7 — Annual Fertilizer Tours and Conferences, sponsored by the Alabama Agricultural Experiment Station, in cooperation with the Alabama Soil Fertility Society; June 5, Crossville and Alexandria; June 6, Auburn; June 7, Headland.

June 10-13—National Plant Food Institute, Annual Convention, the Greenbrier, White Sulphur Springs, W. Va.

June 20-22—Northeast Branch, American Society of Agronomy, Summer Meeting, University of Maryland, College Park, Md.

June 26-28, Pacific Branch, Entomological Society of America, Hotel Claremont, Berkeley, Cal.

June 28-30—Association of Southern Feed & Fertilizer Control Officials, 14th Annual Convention, Hotel Roanoke, Roanoke, Va.; Bruce Poundstone, Kentucky Agricultural Experiment Station, Lexington, Ky., secretary-treasurer.

June 28-30—Seventh Regional Fertilizer Conference of the Pacific Northwest, Chinook Hotel, Yakima, Wash.

June 30—Del-Mar-Va Peninsula Fertilizer Assn., 35th Annual Convention, Hotel George Washington, Ocean City, Md., F. N. Strudwick, P.O. Box 199, Salisbury, Md., Secretary.

July 12—South Carolina Fertilizer Meeting, Tour of Edisto Experiment Station, Blackville, S.C.

July 19-20—Southwestern Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.

July 25-27—Northwest Association of Horticulturists, Entomologists and Plant Pathologists Conference, Northwest Washington Experiment Station, Mount Vernon, Wash.

Aug. 1—Kentucky Fertilizer Conference, Guignol Theatre, University of Kentucky, Lexington, Ky.

Aug. 14-15—Ohio Pesticide Institute, Summer Meeting, Ohio Agricultural Experiment Station, Wooster, Ohio, J. D. Wilson, Wooster, Ohio, Secretary.

Aug. 17-25—Tenth International Congress of Entomology, McGill University and University of Montreal, Montreal, Canada, J. A. Downes, Science Service Bldg., Carling Ave., Ottawa, Ontario, Canada, Congress Secretary.

Aug. 22-24—Beltwide Cotton Mechanization Conference, Atlanta Biltmore, Atlanta, Ga., sponsored by National Cotton Council.

Aug. 30—South Carolina Plant Food Educational Society, Clemson House, Clemson, S.C.

Oct. 15 — Fifth Annual Chemical Sales Clinic, Hotel Commodore, New York, Sponsored by the Salesmen's Association of the American Chemical Industry.

Oct. 15 — Fifth Annual Chemical Sales Clinic, the Salesmen's Association of the American Chemical Industry; Hotel Commodore, New York City; chairman, Preston F. Tinsley, Westvaco Chlor-Alkali Division, Food Machinery and Chemical Corp., 161 East 42nd St., New York 17, N.Y.

Oct. 16-17—National Nitrogen Solutions Assn., Annual Meeting and Trade Show, City Auditorium, Sioux City, Iowa; John White, Auburn, Neb., secretary.

Nov. 2—Joint Agronomy-Industry Work Conference, Atlanta Biltmore Hotel, Atlanta, Ga.

Nov. 7-9—Agricultural Ammonia Institute, Annual Convention, Atlanta Biltmore Hotel, Atlanta, Ga., Jack F. Criswell, Claridge Hotel, Memphis, executive vice president.

Nov. 11-13 — California Fertilizer Assn., 33rd annual convention, Del Coronado Hotel, Coronado, Cal.; Sidney H. Bierly, executive secretary, 475 Huntington Drive, San Marino 9, Cal.

Nov. 19-20 — Eastern Branch, Entomological Society of America, Hotel Haddon Hall, Atlantic City, N.J., B. F. Driggers, Rutgers University, New Brunswick, N.J., secretary.

Nov. 28—Oklahoma Fertilizer Dealers Conference, Sponsored by the Oklahoma Plant Food Educational Society, Oklahoma A&M College, Stillwater.

Nov. 29—Oklahoma Soils and Crops Conference, Oklahoma A&M College, Stillwater.

Dec. 27-31—Entomological Society of America, Annual Meeting, Hotel New Yorker, New York City.

REINSULATING AMMONIA STORAGE SPHERE — When it became necessary to reinstate a 48-ft. diameter storage sphere at the Mississippi Chemical Corp. ammonia plant, Yazoo City, Miss., the job was done without impairment of production or altering of the continuous 34° temperature within. This was accomplished by reinsulating a small section at a time with waterproof cellular glass material. William B. Dunwoody, general operations manager at the Mississippi plant, said that the plant's operation would have been affected if the sphere could not have been kept in use during the reinsulating procedure. The glass fiber insulation blocks, supplied by Pittsburgh Corning Corp., were impaled on protruding pins welded to the exterior of the sphere, and the blocks were secured by asphalt compounds, covered by coats of mastic, a glass fiber membrane, and a final application of mastic. The Mississippi Chemical Corp. indicates that an adjoining sphere, also 48 ft. in diameter, will undergo a similar reinsulation project in the future.

Judd Brooks to Retire From Tennessee Extension

JACKSON, TENN. — Judd Brooks, district extension agent for West Tennessee since 1934, will become agricultural representative for the National Bank of Commerce here July 1.

Mr. Brooks long has been recognized as one of the nation's outstanding farm leaders at the grassroots level. He is retiring from the Tennessee Agricultural Extension Service staff following 40 years of service.

An honor graduate of the University of Tennessee, College of Agriculture, Mr. Brooks came to Jackson in 1916 as county agent for Madison County. Since that time he has become widely known for his work in organizing 4-H Clubs and other farm youth activities.

When Mr. Brooks retires, he will be succeeded by H. T. Short.

ADDS LIQUID FERTILIZER

JACKSON, MINN.—The Wallin Feed Store here has added liquid fertilizer to its line of products. It has installed four tanks with total capacity of 80 tons.

Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge $2.25. Situations wanted, 10¢ a word; $1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Classified advertising rate not available for commercial advertising. Advertisements of new machinery, products and services accepted for insertion at minimum rate of $9 per column inch.

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K. C. Branch Head Named by St. Regis

NEW YORK—The St. Regis Paper Co. announces the appointment of Clyde C. Stinebiser as branch manager at the company's new multiwall bag plant at Kansas City. Mr. Stinebiser previously was a superintendent at the Pensacola, Fla., multiwall bag plant.

The company will move into the plant about June 1, 1956. The new plant will produce multiwall bags for midwestern customers, principally in the feed, milling and fertilizer industries. Kraft paper for this converting operation will be supplied by the company's paper mills in Florida.

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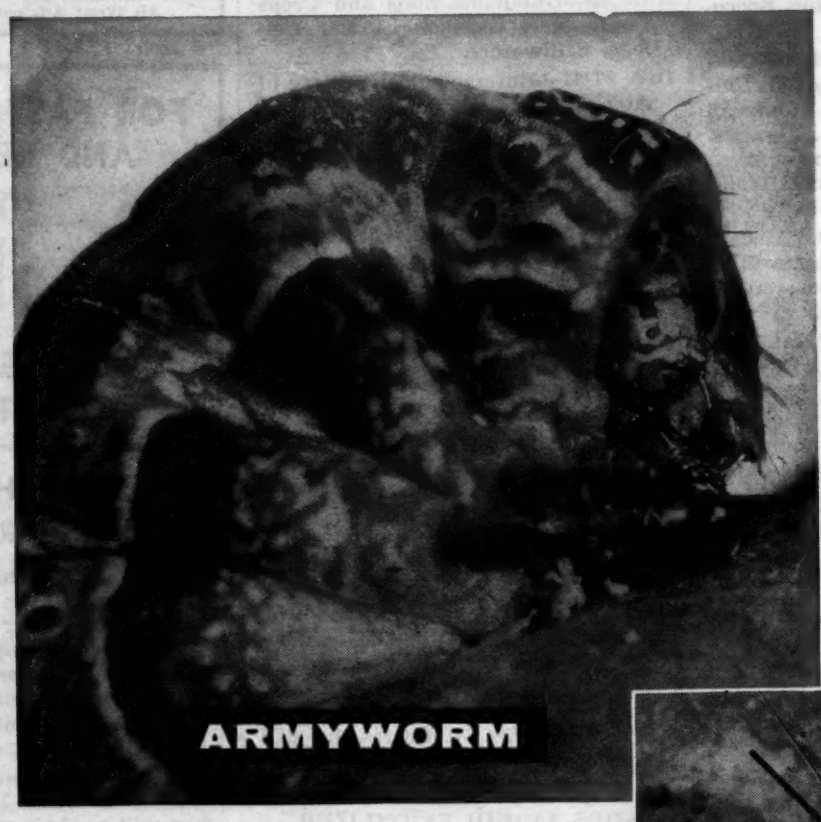

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